GLASGOW CORPORATION.

REPORT

OF THE

MEDICAL OFFICER OF HEALTH

OF THE

CITY OF GLASGOW.

1903.

ORDERED TO BE PRINTED BY THE COMMITTEE ON HEALTH.

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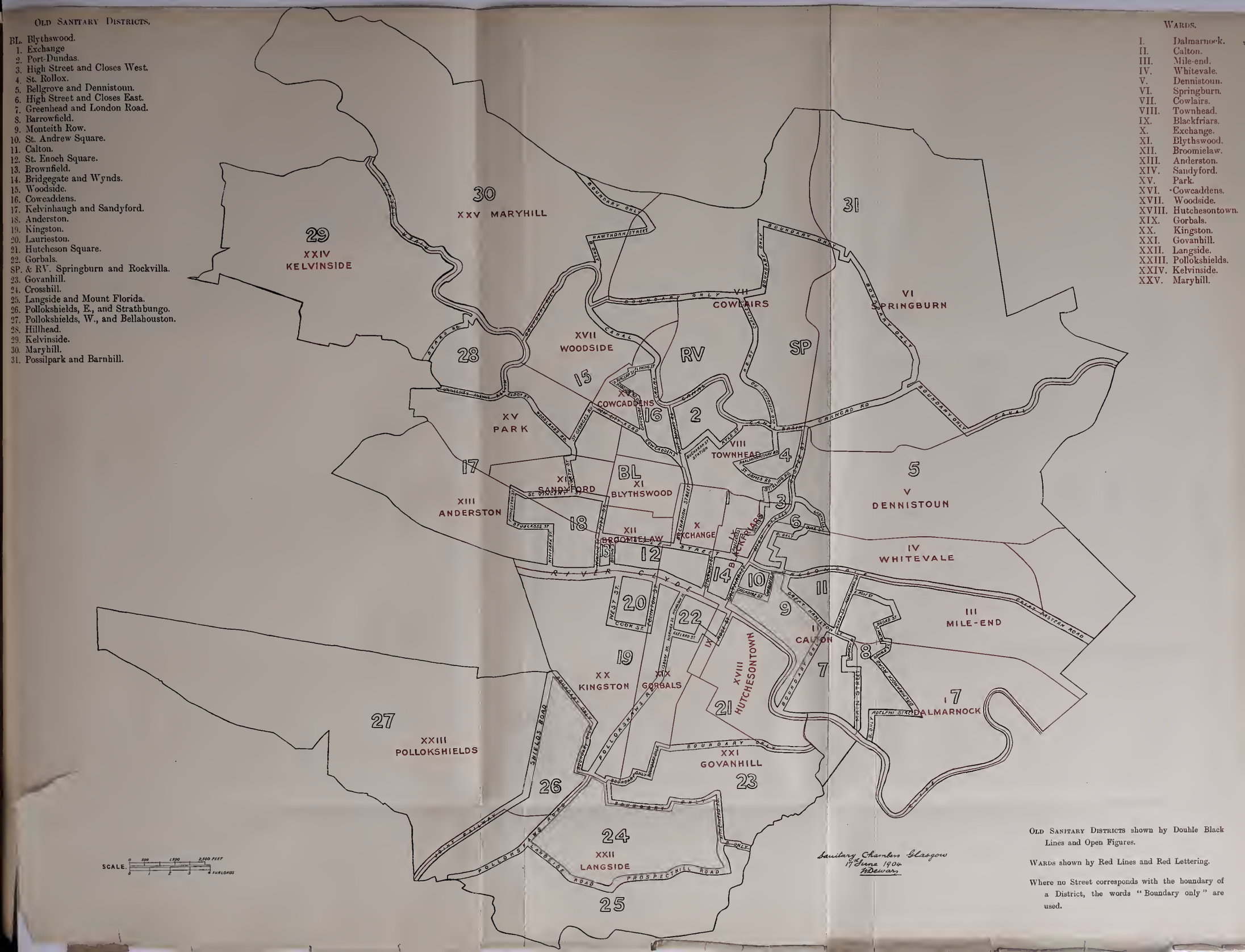
OLD SANITARY DISTRICTS.
BL. Blythswood.
1. Exchange
2. Port-Dundas.
3. High Street and Closes West.
4. St. Rollox.
5. Bellgrove and Dennistoun.
6. High Street and Closes East.
7. Greenhead and London Road.
8. Barrowfield.
9. Monteith Row.
10. St. Andrew Square.
11. Calton.
12. St. Enoch Square.
13. Brownfield.
14. Bridgegate and Wynds.
15. Woodside.
16. Cowcaddens.
17. Kelvinhaugh and Sandyford.
18. Anderston.
19. Kingston.
20. Laurieston.
21. Hutcheson Square.
22. Gorbals.
SP. & RV. Springburn and Rockvilla.
23. Govanhill.
24. Crosshill.
25. Langside and Mount Florida.
26. Pollokshields, E., and Strathbungo.
27. Pollokshields, W., and Bellahouston.
28. Hillhead.
29. Kelvinside.
30. Maryhill.
31. Possilpark and Barnhill.
WARDS.
I. Dalmarnock.
II. Calton.
III. Mile-end.
IV. Whitevale.
V. Dennistoun.
VI. Springburn.
VII. Cowlairs.
VIII. Townhead.
IX. Blackfriars.
X. Exchange.
XI. Blythswood.
XII. Broomielaw.
XIII. Anderston.
XIV. Sandyford.
XV. Park.
XVI. Cowcaddens.
XVII. Woodside.
XVIII. Hutchesontown.
XIX. Gorbals.
XX. Kingston.
XXI. Govanhill.
XXII. Langside.
XXIII. Pollokshields.
XXIV. Kelvinside.
XXV. Maryhill.
XXV MARYHILL
XXIV KELVINSIDE
XVII WOODSIDE
VII COWLAIRS
VI SPRINGBURN
XV PARK
XVI COWCADDENS
VIII TOWNHEAD
XIV SANDYFORD
XI BLYTHSWOOD
XIII ANDERSTON
X EXCHANGE
XII BROOMIELAW
V DENNISTOUN
IV WHITEVALE
III MILE-END
II CALTON
I DALMARNOCK
XVIII HUTCHESONTOWN
XX KINGSTON
XIX GORBALS
XXI GOVANHILL
XXIII POLLOKSHIELDS
XXII LANGSIDE
RIVER CLYDE
SCALE.
OLD SANITARY DISTRICTS shown by Double Black Lines and Open Figures.
WARDS shown by Red Lines and Red Lettering.
Where no Street corresponds with the boundary of a District, the words "Boundary only" are used.
Sanitary Chambers Glasgow 17th June 1904 H Dewar

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REPORT OF THE MEDICAL OFFICER OF HEALTH.

1903.

It will be convenient to summarise here some of the main indications of the health of the population during the year.

	Registrar-General's Estimate.	Medical Officer's Estimate.
Population, ...	786,897	782,110

Number of persons per acre, 61·6.

Total number of deaths registered, ...	15,073
Number, after correction for Institutions, &c., ...	14,483
Death-rate—*All Causes*, ...	18·5 per 1,000
Births registered, ...	25,137
,, after correction, ...	25,060
Birth-rate, ...	32·0 per 1,000
Infantile death-rate, ...	142 per 1,000 births.
Death-rate from zymotic diseases, ...	2·5 per 1,000
,, tubercular diseases—	
(*a*) Phthisis, ... 1·611	
(*b*) Others, ... 1·196	2·8 ,,
,, diseases of respiration, ...	3·9 ,,
,, ,, circulatory organs,	1·5 ,,
,, ,, nervous system,	1·8 ,,
,, cancer (malignant disease),	·7 ,,

In the revised instructions issued by the Local Government Board in November, 1903, regarding the Annual Reports of Sanitary Officers, the Medical Officer is required, under article (*a*) to submit—

> "A general account of the influences and conditions injurious or dangerous to the health of the burgh, and of the measures that, in his opinion, should be adopted for its improvement,"

and a detailed consideration of several of the factors by which the health of a community may be estimated will form a fitting prelude thereto.

POPULATION.

The Registrar-General estimated the population of Glasgow at the middle of 1903 at **786,897**, or an increase of 11,296 on his estimate for the corresponding period of 1902. This is based on the rate of increase during the intercensal period, 1891-1901, but it exceeds by 4,787 the estimate based on the return of inhabited houses.

In submitting this latter estimate, which is based on the Assessor's return of inhabited houses within the municipality as at 1st June, 1903, some details were given of the increase or decrease in the several Wards, and these may here be reproduced (see Table A), because the divergence, if continued, will appreciably affect the statement of the death-rates throughout the decennium, unless the efforts which are again being made to obtain a limited quinquennial census in 1906 are successful.

The number of tenanted houses was 162,443, which, after deducting 1½ per cent. (2,436 houses), representing those not occupied, multiplied by 4·769 (the average number of inhabitants per house in 1901), gives 763,070 persons. Adding to this 17,799 (the number of inmates in Institutions, as ascertained by special census) and 1,241 (the population of the Harbour of Glasgow as at the Census of 1901), the total population of Glasgow on 1st June, 1903, was **782,110.** This shows an increase in inhabited houses of 1,196, and in population of 5,142, or 0·7 per cent. The Registrar-General's estimate exceeds by 4,787 that which is derived from the inhabited houses.

Compared with the annual rate of increase during last decade, and with the estimated increase of last year, that for the present year shows a marked reduction. The increase in last decade exceeded 10,000 persons annually; in the fifteen months ending June, 1902, the Registrar-General estimated it at 13,000, while the estimate from inhabited houses was 15,000. The average annual increase which would be represented by surplus births alone in last decade exceeded 7,000; in the twelve months ending June of last year it could be estimated as over 8,000—figures which are both considerably in excess of the total increase for the present year. How far this may be regarded as suggesting a movement outwards of the population, aided by increasing means of locomotion, or as resulting from a lessening of the opportunities of employment, is not apparent;* but it undoubtedly suggests that the number of unoccupied houses is considerable, and I have asked Mr. Henry if he can supplement his information by a statement of the number of such in the several wards.†

The following Table gives the number of inhabited houses and the estimated population (exclusive of inmates of Institutions and persons on board ships in the Harbour) in each municipal ward for 1902 and 1903, with the increase or decrease in each for the year:—

---

* The reduction of 477 in the number of persons residing in Institutions, included in which are many of the common Lodging-houses, would appear to suggest lack of employment as being to some extent operative in producing this reduction.

† This is now given in Table B.

TABLE A.

GLASGOW, 1903.—INHABITED HOUSES AS PER ASSESSOR'S RETURN, AND ESTIMATED POPULATION FOR EACH MUNICIPAL WARD.

MUNICIPAL WARDS.	INHABITED HOUSES.				POPULATION.			
	1902.	1903.	Decrease.	Increase.	1902.	1903.	Decrease.	Increase.
1. Dalmarnock, -	11,270	11,220	50	...	51,085	50,859	226	...
2. Calton, - -	8,568	8,532	36	...	39,124	38,960	164	...
3. Mile-end, - -	9,471	9,470	1	...	43,173	43,169	4	...
4. Whitevale, - -	7,124	7,152	...	28	33,646	33,778	...	132
5. Dennistoun, -	6,797	7,130	...	333	30,990	32,509	...	1,519
6. Springburn, -	8,366	8,674	...	308	39,891	41,360	...	1,469
7. Cowlairs, - -	5,751	6,091	...	340	28,119	29,781	...	1,662
8. Townhead, - -	8,652	8,467	185	...	40,862	39,989	873	...
9. Blackfriars, -	5,003	4,740	263	...	24,368	23,087	1,281	...
10. Exchange, - -	432	412	20	...	2,340	2,232	108	...
11. Blythswood, -	679	658	21	...	3,712	3,596	116	...
12. Broomielaw, -	1,716	1,594	122	...	8,975	8,337	638	...
13. Anderston, -	6,295	6,249	46	...	29,669	29,452	217	...
14. Sandyford, - -	5,569	5,547	22	...	26,593	26,488	105	...
15. Park, - -	5,143	5,088	55	...	25,222	24,953	269	...
16. Cowcaddens, -	8,335	8,523	...	188	39,079	39,960	...	881
17. Woodside, - -	10,074	9,987	87	...	46,050	45,653	397	...
18. Hutchesontown, -	9,447	9,374	73	...	42,300	41,974	326	...
19. Gorbals, - -	7,415	7,518	...	103	36,036	36,537	...	501
20. Kingston, - -	7,249	7,310	...	61	34,472	34,762	...	290
21. Govanhill, - -	7,067	7,420	...	353	32,180	33,787	...	1,607
22. Langside, - -	6,161	6,489	...	328	28,127	29,625	...	1,498
23. Pollokshields, -	3,245	3,302	...	57	16,690	16,984	...	294
24. Kelvinside, -	3,408	3,660	...	252	17,556	18,854	...	1,298
25. Maryhill, - -	8,010	7,836	174	...	37,191	36,384	807	...
Institutions, -	...	...	...	...	18,276	17,799	477	...
Harbour, - -	...	...	...	...	1,241	1,241	...	...
	161,247	162,443	...	1,196	776,967	782,110	...	5,143

It will be noted that the main decrease is localised in the wards occupying the central districts of the City, and indicates only a widening of the central area of decrease during last decade. There is, however, a slight decrease in Calton and Bridgeton, and a greater one in Maryhill, which is the more noticeable because of the rapid and continuous increase in population of that district since 1890.

TABLE B.

Statement prepared by the Assessor showing the Numbers of Unoccupied Dwelling-Houses of 1, 2, 3, 4 (and upwards) Apartments in the City from the Valuation Roll for the Year 1903-1904.

Municipal Wards.	1 Apartment.	2 Apartments.	3 Apartments.	4 & Upwards Apartments.	Total.
1. Dalmarnock, - -	217	278	18	1	514
2. Calton, - - -	129	122	35	15	301
3. Mile-end, - -	139	200	51	6	396
4. Whitevale, -	70	102	32	7	211
5. Dennistoun, - -	36	122	105	54	217
6. Springburn, - -	297	351	93	11	752
7. Cowlairs, - -	128	258	35	2	423
8. Townhead, - -	82	190	38	10	320
9. Blackfriars, - -	47	65	17	29	158
10. Exchange, - -	5	3	3	3	14
11. Blythswood, - -	...	2	2	12	16
12. Broomielaw, - -	9	18	8	6	41
13. Anderston, - -	26	40	18	20	104
14. Sandyford, - -	19	21	10	32	82
15. Park, - - -	...	5	4	73	82
16. Cowcaddens, - -	136	206	35	13	390
17. Woodside, - -	89	123	21	19	252
18. Hutchesontown, -	87	105	19	2	213
19. Gorbals, - -	44	39	44	26	153
20. Kingston, - -	55	83	52	28	218
21. Govanhill, -	35	156	67	14	272
22. Langside, - -	...	7	210	170	387
23. Pollokshields, - -	...	4	11	102	117
24. Kelvinside, - -	...	14	24	107	146
25. Maryhill, - -	107	319	73	61	560
	1,757	2,833	1,025	823	6,438

17*th November*, 1903.

SOURCES OF INCREASE.

The importance attaching to the variation in the estimates just given is increased when they are viewed in relation to the figures which express the natural growth of the population.

During the year the number of births (corrected) was 25,060 and of deaths 14,483, and the excess of births over deaths was 10,577.

This would represent 93·6 per cent. of the increase estimated by the Registrar-General to have occurred, and would leave a surplus of 719 persons to be explained by the excess of immigration over emigration. But on the inhabited house estimate the increase (5,143) in population has been less than half the natural growth; in other words, it would seem to indicate that the overflow of population which was so marked a feature of the "'eighties" is again becoming established.

The differences thus arising will be appreciated by comparing the rate of natural increase, shown in the third column, with the rates of increase of the Registrar-General's and Medical Officer's estimates respectively:—

	Registrar-General.	Medical Officer.	Natural Increase on Registrar-General's Population.
Population, 1902, ...	775,601	776,967	—
1903, ...	786,897	782,110	786,178
Increase, ...	11,296	5,143	10,577
Percentage Increase,	1·5	·7	1·4

By natural growth alone the population would have increased 1·4 per cent., and the Registrar-General's estimate assumes that this has been retained and the population further increased by a slight excess from surplus immigration, while the inhabited-house estimate suggests that the increase only amounts to one-half the number which surplus births alone would have yielded.

In Table I., which follows, the average number of inhabited houses, population, and density of the several Wards, as ascertained at the Census and in 1903, are stated. Attention may be directed to the reduction in figures expressing density in the wards as compared with the higher range of the more limited areas which the old statistical districts presented.

TABLE, No. I.—Acreage, Inhabited Houses, and Persons per Acre in each Municipal Ward in 1903; also the Population and Persons per Acre at the Census of 1901, showing the percentage Increase or Decrease in the Population during the Intervening Period.

Municipal Wards.	Acreage, 1903.	Inhabited Houses, 1903.	Population.						Persons per Acre (including Institutions and Shipping).	
			Census 1901.	Estimated, Middle of 1903.	Increase.	Decrease.	Increase per Cent.	Decrease per Cent.	Census 1901.	1903.
1. Dalmarnock,	562	11,220	49,210	50,859	1,649	...	3·2	...	89	92
2. Calton,	337	8,532	39,045	38,960	...	85	...	0·2	123	122
3. Mile-end,	512	9,470	42,110	43,169	1,059	...	2·5	...	83	85
4. Whitevale,	321	7,152	33,897	33,778	...	119	...	0·4	111	109
5. Dennistoun,	718	7,130	30,482	32,509	2,027	...	6·2	...	45	48
6. Springburn,	1,531	8,674	37,744	41,360	3,616	...	8·7	...	26	28
7. Cowlairs,	865	6,091	26,597	29,781	3,184	...	10·7	...	31	34
8. Townhead,	261	8,467	40,492	39,989	...	503	...	1·3	163	158
9. Blackfriars,	146	4,740	24,333	23,087	...	1,246	...	5·4	173	163
10. Exchange,	123	412	2,326	2,232	...	94	...	4·2	23	22
11. Blythswood,	90	658	4,101	3,596	...	505	...	14·0	48	44
12. Broomielaw,	104	1,594	9,633	8,337	...	1,296	...	15·5	102	91
13. Anderston,	462	6,249	29,934	29,452	...	482	...	1·6	68	64
14. Sandyford,	138	5,547	26,449	26,488	39	...	0·1	...	192	193
15. Park,	346	5,088	24,903	24,953	50	...	0·2	...	74	74
16. Cowcaddens,	173	8,523	40,380	39,960	...	420	...	1·1	239	238
17. Woodside,	283	9,987	45,447	45,653	206	...	0·5	...	161	161
18. Hutchesontown,	224	9,374	42,284	41,974	...	310	...	0·7	189	187
19. Gorbals,	243	7,518	35,750	36,537	787	...	2·2	...	151	154
20. Kingston,	412	7,310	34,386	34,762	376	...	1·1	...	85	86
21. Govanhill,	449	7,420	31,639	33,787	2,148	...	6·4	...	70	75
22. Langside,	840	6,489	25,337	29,625	4,288	...	14·5	...	31	36
23. Pollokshields,	1,353	3,302	15,317	16,984	1,667	...	9·9	...	11	13
24. Kelvinside,	917	3,660	15,611	18,854	3,243	...	17·2	...	18	21
25. Maryhill,	1,278	7,836	33,717	36,384	2,667	...	7·3	...	28	30
— Institutions and Shipping,	...	...	20,588	19,040	...	1,548	...	...	...	...
CITY,	12,688	162,443	761,712	782,110	20,398	...	2·6	...	60·07	61·6

As indicated in former Reports, some sub-division of the wards for statistical purposes may be required in the future in order that the true density of smaller areas and other factors expressing unhealthiness may become more accurately defined—similar, indeed, to what is already done in the present Report by the retention of the *districts* of Brownfield and Cowcaddens within the *Wards* Broomielaw and Cowcaddens. (1)

MARRIAGES.

In 1903, 7,201 marriages were registered in Glasgow, as compared with 7,304 in 1902. These represent rates per thousand persons living of 9·2 and 9·38 respectively.

The rate is lower than any which has been registered since 1895.

GLASGOW.—MARRIAGE-RATE PER 100,000 LIVING FROM 1870.*

1870, ...	980	1891-95, ...	895
1871-75, ...	992	1896-1900	989
1876-80, ...	901	1901, ...	926
1881-85, ...	937	1902, ...	938
1886-90, ...	884	1903, ...	915

BIRTHS.

The number of births registered in and belonging to Glasgow during the year 1903 was 25,060, which represents a rate of 32·042 per 1,000 living, and may be compared with 24,708 births registered during 1902, representing a rate of 31·802.

The birth-rate in several periods since 1871 has been as follows :—**

	Glasgow.	Scotland.
1871-80, ...	36·6	34·9
1881-90, ...	36·5	32·4
1891-95, ...	33·9	30·7
1896-1900, ...	33·1	30·0
1901, ...	31·8	29·5
1902, ...	31·8	29·2
1903, ...	32·0	29·2

Maryhill Ward presents the highest birth-rate (42·8); Springburn, Dalmarnock, Mile-end, and Hutchesontown all exceed 40; Blythswood, now given over largely to business purposes, is lowest with 9·4; in Langside it is 21·6; in Pollokshields and Kelvinside it is 11 and 11·5 respectively.

During the decade 1893-1902, and in 1902 and 1903, the rates for the following large towns have been as follows :—**

	1893-1902.	1903.
Glasgow, ...	**32·7**	**31·9**
Edinburgh, ...	26·8	24·8
Dundee, ...	29·2	29·2
Aberdeen, ...	32·4	31·0
London, ...	29·7	28·4
Liverpool, ...	35·2	33·4
Manchester, ...	32·5	32·1
Birmingham, ...	32·8	31·8

(1) 1903.—NUMBER OF INHABITED HOUSES, ESTIMATED POPULATION, DEATHS, AND DEATH RATES IN OLD SANITARY DISTRICTS NOS. 13 AND 16.

DISTRICT.	Number of Houses.	Persons per House.	House Population.	House Deaths.	Death-rate per 1,000.
(13.) Brownfield, -	596	5·218	3,063	103	33·63
(16.) Cowcaddens, -	3,878	4·568	17,450	533	30·54

* The rates in this Table are derived from Registrar-General's Annual Reports.

** The rates here are obtained from the Registrar-General's Annual Reports and Summaries.

In the following Table the ward birth-rates for 1902 and 1903 are given:—

TABLE II.

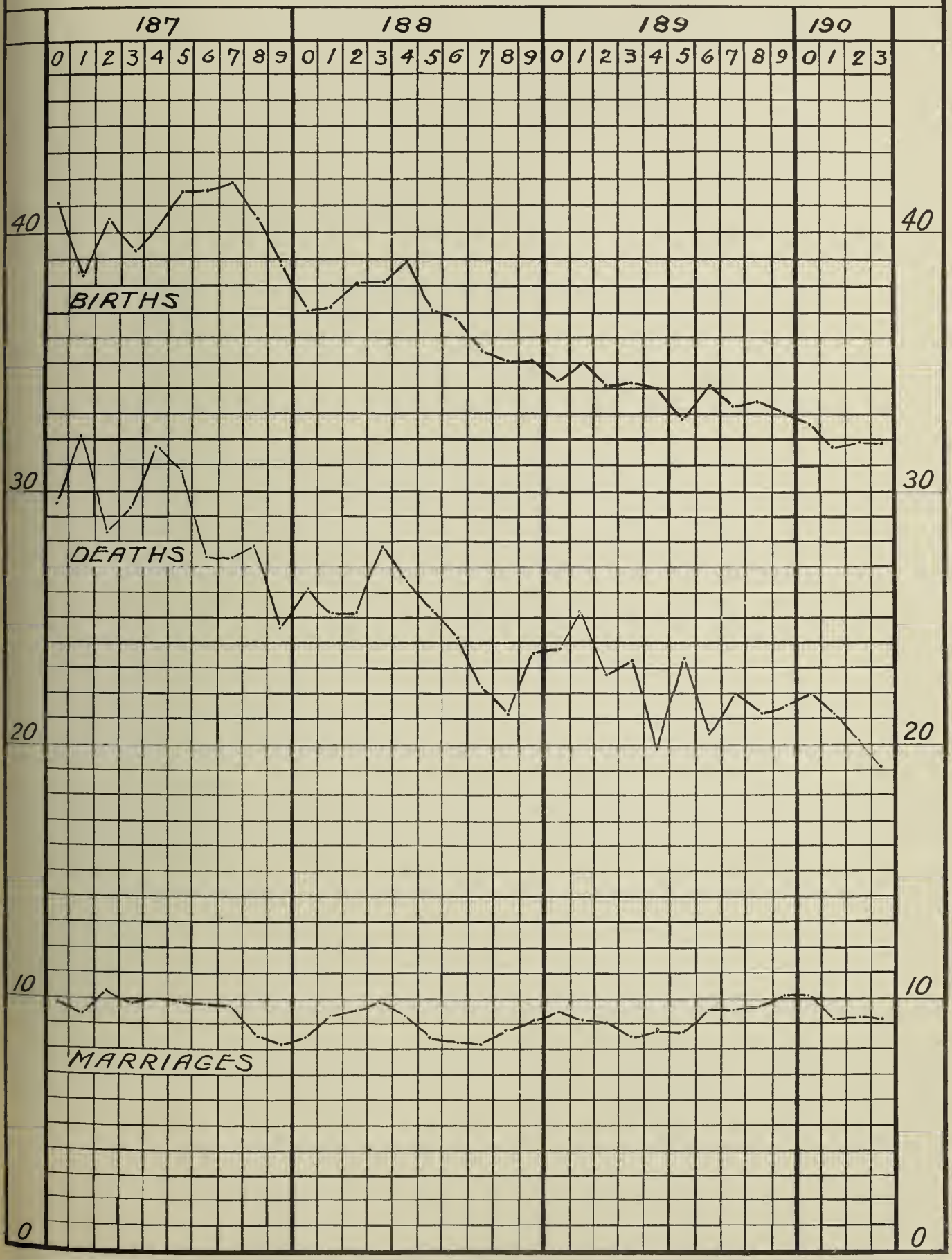
GLASGOW.—BIRTHS AND BIRTH-RATES *PER MILLION* IN EACH WARD, EXCLUSIVE OF INSTITUTIONS AND HARBOUR.

MUNICIPAL WARDS.	1902.		1903.	
	Number.	Rate per Million.	Number.	Rate per Million.
1. Dalmarnock, ...	2,086	40,834	2,083	40,956
2. Calton, ...	1,409	36,014	1,279	32,828
3. Mile-end, ...	1,723	39,909	1,784	41,325
4. Whitevale, ...	1,117	33,198	1,098	32,506
5. Dennistoun, ...	962	31,042	949	29,192
6. Springburn, ...	1,666	41,764	1,731	41,852
7. Cowlairs, ...	968	34,425	1,058	35,526
8. Townhead, ...	1,373	33,601	1,309	32,734
9. Blackfriars, ...	795	32,625	765	33,135
10. Exchange, ...	44	18,803	50	22,401
11. Blythswood, ...	56	15,086	34	9,455
12. Broomielaw, ...	260	28,969	266	31,906
13. Anderston, ...	1,012	34,110	1,023	34,734
14. Sandyford, ...	605	22,750	677	25,559
15. Park, ...	325	12,886	334	13,345
16. Cowcaddens, ...	1,416	36,234	1,403	35,110
17. Woodside, ...	1,490	32,356	1,533	33,579
18. Hutchesontown, ...	1,675	39,598	1,694	40,358
19. Gorbals, ...	1,024	28,416	1,019	27,890
20. Kingston, ...	1,019	29,560	1,058	30,436
21. Govanhill, ...	1,169	36,327	1,194	35,339
22. Langside, ...	572	20,336	641	21,637
23. Pollokshields, ...	174	10,425	188	11,069
24. Kelvinside, ...	213	12,133	218	11,563
25. Maryhill, ...	1,464	39,364	1,558	42,821
Institutions and Harbour, ...	91	—	114	—
CITY, ...	24,708	31,802	25,060	32,042

In the accompanying Chart the curves represent the movement in the rate of births, deaths, and marriages respectively since 1870:—

GLASGOW 1870 - 1903.

PROPORTION OF BIRTHS, DEATHS AND MARRIAGES FOR EVERY 1000 PERSONS LIVING.



DEATHS—ALL CAUSES.

15,073 deaths from all causes were registered in Glasgow during the year 1903, representing a death-rate of 19·2 per 1,000 living on the Registrar-General's estimate of population. But, as has been explained in former Reports, these are subject to correction for institutional deaths in the following manner:—

Number of deaths registered as occurring within the City, 1903,		15,073
From which deduct deaths occurring in Glasgow, chiefly in Institutions, of persons whose usual residence is beyond the City boundary, ...		800
		14,273
And add deaths of Glasgow citizens in Govan Poorhouse,	203	210
And in Knightswood Hospital, ...	7	
Leaving		14,483

properly belonging to Glasgow. On the Medical Officer's estimate of the population, this represents a death-rate of **18·5** per 1,000 living. The actual number of deaths registered is less than in any year since 1896, although the population exceeds the estimate for that year by 81,000. The rate is lower by 851 *per million* than in 1902, and lower than any hitherto recorded. It will be noted further by referring to Table III., which follows, that in each

TABLE III.

GLASGOW, 1903.—DEATH-RATES (CORRECTED DEATHS) PER THOUSAND LIVING, SHOWING INCREASE OR DECREASE IN EACH CLASS AS COMPARED WITH 1902.

	1902.		1903.		−	+	−	+
I. PRINCIPAL ZYMOTIC DISEASES, ...	...	2·072	...	2·507	...	...	...	·435
Smallpox, ...	·054	...	·031	...	·023	...	...	...
Diphtheria, ...	·135	...	·132	...	·003	...	...	...
Scarlet Fever, ...	·145	...	·105	...	·040	...	...	...
Typhus Fever, ...	·012	...	·008	...	·004	...	...	...
Enteric and Doubtful Fevers,	·142	...	·183	...	...	·041	...	...
Measles, ...	·342	...	·442	...	...	·100	...	...
Whooping-cough, ...	·600	...	·772	...	...	·172	...	...
Diarrhœa, ...	·642	...	·834	...	...	·192	...	...
II. SEPTIC DISEASES, ...	...	·192	...	·173	...	...	·019	...
III. TUBERCULAR DISEASES—	...	2·926	...	2·807	...	...	·119	...
Phthisis, ...	1·672	...	1·611	...	·061	...	...	...
Not Phthisis, ...	1·254	...	1·196	...	·058	...	...	...
IV. CANCER (Malignant Disease), ...	...	·727	...	·656	...	...	·071	...
V. DISEASES OF NERVOUS SYSTEM, ...	...	1·835	...	1·794	...	...	·041	...
VI. ,, CIRCULATORY SYSTEM,	...	1·574	...	1·524	...	...	·050	...
VII. ,, RESPIRATORY ,,	...	4·836	...	3·927	...	...	·909	...
VIII. OTHER CAUSES, ...	...	5·213	...	5·136	...	...	·077	...
All Causes, ...	...	19·375	...	18·524	...	...	·851	...
Birth-rates, ...	...	31·802	...	32·042	...	...	...	...
Deaths under 1 year per 1,000 born,	...	128	...	142	...	...	...	...

of the classes of disease there tabulated the rate is lower than in 1902, save in enteric fever, measles, whooping-cough, and diarrhœa. For several periods the death-rate from all causes, calculated on the inhabited house estimate of the population and on the deaths as thus corrected, has been as follows:—

GLASGOW.—ALL CAUSES—DEATH-RATE PER 1,000 LIVING.

1881-1890, ...	24·22
1891-1900, ...	21·53
1901, ...	20·63
1902, ...	19·38
1903, ...	18·52

In order to compare these rates with those of other towns, we must revert to the deaths as registered and to the Registrar-General's estimate of the population, and in the following Table the rates are given for several of the large towns in England and Scotland:—

GLASGOW AND SEVERAL TOWNS—DEATH-RATE PER 1,000 LIVING.

	1893-1902.		1903.
Glasgow, ...	**21·4**	...	**19·2**
Edinburgh, ...	19·0	...	16·9
Dundee, ...	20·7	...	18·1
Aberdeen, ...	18·4	...	17·0
London, ...	18·9	...	15·7
Liverpool, ...	23·9	...	20·5
Manchester, ...	23·1	...	19·7
Birmingham, ...	20·5	...	17·8

It is satisfactory to note that the reduction in the death-rate at all ages is accompanied by a reduction in the rate at each age period up to 65 at least. Beyond this the difference between the rates of the two periods compared suggests a discrepancy between the number living and dying in later life, which would be accounted for by the ages at death in persons of advanced years being stated as considerably less than their age for census purposes, and there is some reason for regarding the customs of those life assurance companies which accept from the proposer a statement of age instead of a certificate of birth as tending to perpetuate this anomaly.

When the rates for corresponding age periods, as given in the accompanying table, are compared, it will be seen that males at each period of adult life, save 55-65, had in the years 1892-1900 a death-rate less by fully *one* per 1,000 than males of similar ages in the decennium 1881-1890, and that for *females* at ages 15-35 the death-rate in the later period was less by 2 per 1,000. For children under 5 the death-rate is 8 per 1,000 less for each sex, and fully 3 per 1,000 for ages 5-10.

Making due allowances for the inclusion of the suburban area in the population, from which the rates for 1892-1900 have been calculated, there still remains a substantial gain at each of the age periods compared.

GLASGOW.—AVERAGE ANNUAL MORTALITY PER 1,000 LIVING AT CERTAIN AGE PERIODS.

AGE.	MALES.			FEMALES.		
	1881-90.	1892-1900.	Decrease per 1,000, 1892-1900.	1881-90.	1892-1900.	Decrease per 1,000, 1892-1900.
0—5	86·2	77·5	8·7	75·5	67·2	8·3
5	10·6	7·0	3·6	10·1	7·0	3·1
10	5·5	3·8	1·7	5·3	3·9	1·4
15	7·2	5·6	1·6	7·1	4·9	2·2
20	7·9	6·4	1·5	8·9	6·0	2·9
25	9·3	8·2	1·1	10·9	8·5	2·4
35	15·2	14·2	1·0	14·2	12·4	1·8
45	26·5	24·8	1·7	21·5	20·3	1·2
55	45·8	45·5	0·3	38·4	37·7	0·7

In Table IV. the number of deaths and the rate per million living are stated for each Ward, and corresponding information is included for 1902. It will be seen that Broomielaw, Cowcaddens, Mile-end, Calton, and Blackfriars all present rates much in excess of the City mean.

TABLE IV.

GLASGOW, 1903.—DEATHS AND DEATH-RATES *PER MILLION* IN EACH MUNICIPAL WARD, WITH CORRESPONDING FIGURES FOR 1902.

MUNICIPAL WARDS.	1902.		1903.	
	Number.	Rate per Million.	Number.	Rate per Million.
1. Dalmarnock, ...	996	19,497	979	19,249
2. Calton, ...	978	**24,997**	890	**22,844**
3. Mile-end, ...	962	**22,282**	1,003	**23,233**
4. Whitevale, ...	666	19,794	648	19,184
5. Dennistoun, ...	409	13,198	431	13,258
6. Springburn, ...	734	18,400	772	18,665
7. Cowlairs, ...	439	15,612	456	15,312
8. Townhead, ...	814	19,921	736	18,405
9. Blackfriars, ...	588	**24,130**	520	**22,524**
10. Exchange.	33	14,103	41	18,369
11. Blythswood, ...	50	13,470	49	13,626
12. Broomielaw, ...	259	**28,858**	230	**27,588**
13. Anderston, ...	600	**20,223**	544	18,470
14. Sandyford, ...	445	16,734	410	15,478
15. Park, ...	303	12,013	273	10,940
16. Cowcaddens, ...	915	**23,414**	957	**23,949**
17. Woodside, ...	740	16,069	693	15,179
18. Hutchesontown, ...	863	**20,402**	819	19,512
19. Gorbals, ...	684	18,981	693	18,966
20. Kingston, ...	616	17,870	651	18,727
21. Govanhill, ...	508	15,786	473	13,999
22. Langside, ...	287	10,204	307	10,363
23. Pollokshields.	191	11,444	164	9,656
24. Kelvinside, ...	139	7,918	151	8,009
25. Maryhill, ...	547	14,708	544	14,951
Institutions and Harbour, ...	1,288	...	1,049	...
CITY, ...	15,054	19,375	14,483	18,524

Reference was made in the Report for last year to the effect of including within the larger areas of the Wards several smaller districts which had high, although in most cases decreasing, annual rates, and in the following scheme the ward death-rates for 1903 may be compared with the average annual death-rates during the years 1898-1902 of the districts forming their several areas. The Map forming the frontispiece has been prepared in order to preserve a pictorial record of the relationship of the old Sanitary Districts or Statistical Divisions to the Wards as presently existing.

TABLE V.—GLASGOW, 1903.—ALL CAUSES.—DEATH-RATES PER 1,000 LIVING IN EACH MUNICIPAL WARD,

MUNICIPAL WARDS.		SANITARY DISTRICTS.													
NAME.	1903.	Blythswood.	Exchange.	Port-Dundas.	High Street and Closes West.	St. Rollox.	Bellgrove and Dennistoun.	High Street and Closes East.	Greenhead and London Road.	Barrowfield.	Monteith Row.	St. Andrew Square.	Calton.	St. Enoch Square.	Brownfield.
1. Dalmarnock, ...	19·3	...	...	...	...	...	...	...	21·6	25·1	...	...	...	...	...
2. Calton, ...	22·8	...	...	...	...	...	...	...	do.	do.	22·4	22·7	27·6	...	...
3. Mile-end, ...	23·2	...	...	...	...	...	18·7	...	do.	do.	...	...	...	...	...
4. Whitevale, ...	19·2	...	...	...	...	...	do.	28·8	...	...	...	...	...	...	...
5. Dennistoun, ...	13·3	...	...	...	...	...	do.	do.	...	...	...	...	...	...	...
6. Springburn, ...	18·7	...	...	...	...	...	do.	...	...	...	..	...	...	...	...
7. Cowlairs, ...	15·3	...	...	...	...	...	...	...	...	...	...	...	...	...	...
8. Townhead, ...	18·4	...	19·3	29·4	27·6	21·0	...	...	...	...	...	...	...	...	...
9. Blackfriars, ...	22·5	...	do.	...	do.	...	...	...	...	...	...	...	...	...	...
10. Exchange, ...	18·4	15·6	do.	...	...	...	...	...	...	...	...	...	...	25·0	...
11. Blythswood, ...	13·6	do.	...	...	...	...	...	...	...	...	...	...	...	...	...
12. Broomielaw, ...	27·6	do.	...	...	...	...	...	...	...	...	...	...	...	do.	34·4
13. Anderston, ...	18·5	...	...	...	...	...	...	...	...	...	...	...	...	...	...
14. Sandyford, ...	15·5	do.	...	...	...	...	...	...	...	...	...	...	...	...	...
15. Park, ...	10·9	do.	...	...	...	...	...	...	...	...	...	...	...	...	...
16. Cowcaddens, ...	23·9	do.	...	...	...	...	...	...	...	...	...	...	...	...	...
17. Woodside, ...	15·2	...	...	...	...	...	...	...	...	...	...	...	...	...	...
18. Hutchesontown,	19·5	...	...	...	...	...	...	..	...	...	...	...	...	...	...
19. Gorbals, ...	19·0	...	...	...	...	...	...	...	...	...	...	...	...	...	...
20. Kingston, ...	18·7	...	...	...	...	...	...	...	...	...	...	...	...	...	...
21. Govanhill, ...	14·0	...	...	...	...	...	...	...	..	...	...	...	...	...	...
22. Langside, ...	10·4	...	...	...	...	...	...	...	...	...	...	...	...	...	...
23. Pollokshields. ...	9·7	...	...	...	...	...	...	...	...	..	...	...	...	...	...
24. Kelvinside, ...	8·0	...	...	...	...	...	...	...	...	..	...	...	...	...	...
25. Maryhill, ...	15·0	...	...	...	...	...	...	...	...	...	...	...	...	...	..
CITY (including Institutions and Shipping),	18·5	20·4													

AND AVERAGE ANNUAL RATES FOR THE YEARS 1898-1902 OF SANITARY DISTRICTS COMPOSING THEM.

SANITARY DISTRICTS.																		
Bridgegate and Wynds.	Woodside.	Cowcaddens.	Kelvinhaugh and Sandyford.	Anderston.	Kingston.	Laurieston.	Hutcheson Square.	Gorbals.	Springburn and Rockvilla.	Govanhill.	Crosshill.	Langside and Mount Florida.	Pollokshields and Strathbungo.	Pollokshields West and Bellahouston.	Hillhead.	Kelvinside.	Maryhill.	Possilpark and Barmhill.
...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	..
...	...	...	..	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
...	...	...	...	...	...	...	...	...	18·7	...	...	...	...	...	...	...	...	16·7
...	...	...	...	...	...	...	...	...	do.	...	...	...	...	...	...	...	...	do.
...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
26·9	...	...	...	...	...	...	20·4	27·8	...	...	...	...	...	...	...	...	...	...
...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
...	...	...	...	25·0	...	...	...	...	...	...	..	...	...	...	...	...	...	...
...	...	...	14·0	do.	...	...	...	...	...	...	...	...	...	...	...	...	...	...
...	...	...	do.	do.	...	...	...	...	...	...	...	...	...	...	...	...	..	...
...	17·2	...	do.	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
...	do.	31·9	...	...	...	...	...	...	do.	...	...	...	...	...	...	...	...	...
...	do.	...	...	...	...	...	...	...	do.	...	...	...	...	...	...	...	...	...
..	...	...	...	...	...	...	do.	...	...	...	...	...	...	..	...	...	...	...
...	...	...	..	...	19·1	...	do.	do.	...	...	...	...	...	...	...	...	...	...
...	...	...	...	...	do.	26·1	...	...	...	...	...	...	...	...	...	...	...	...
...	...	...	...	...	...	...	do.	...	...	14·9	...	...	...	...	...	...	...	...
...	...	...	...	...	...	...	...	...	...	...	10·6	10·0	10·4	...	...	...	...	...
...	...	...	...	...	...	...	...	...	...	...	...	...	do.	9·9	...	...	...	...
...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	10·4	7·3	...	...
...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	16·3	do.

AGE DISTRIBUTION OF DEATHS.

In the following Table these are stated for seven periods of life, and on referring to the percentage distribution it will be seen that 25 per cent. were of infants under 1 year and 40 per cent. were of children under 5 years, as compared with 21 and 36 per cent. respectively in 1902.

TABLE VI.

Glasgow, 1903.—Deaths from Different Diseases at Several Age Periods.

DISEASES.	Total, All Ages.	Under 1 Year.	1-4 Years.	5-14 Years.	15-19 Years.	20-24 Years.	25-59 Years.	60 Years and Over.	Under 5 Years.	5 Years and Over.
Smallpox, ...	24	2	2	2	...	...	16	2	4	20
Diphtheria and Membranous Croup, ...	103	19	71	11	...	...	1	1	90	13
Scarlet Fever, ...	82	2	43	30	2	3	2	...	45	37
Typhus Fever, ...	6	...	...	...	1	1	4	...	...	6
Enteric Fever, ...	142	1	2	28	17	24	67	3	3	139
Undefined Fever, ...	1	...	1	...	...	...	...	...	1	...
Measles, ...	346	68	255	22	...	...	1	...	323	23
Whooping-cough, ...	604	262	321	21	...	...	...	...	583	21
Diarrhœal Diseases,	652	411	132	17	3	4	54	31	543	109
Septic Diseases, ...	135	13	5	7	5	18	73	14	18	117
Phthisis, ...	1,260	21	47	80	123	170	781	38	68	1,192
Other Tubercular Diseases, ...	935	290	391	129	28	20	69	8	681	254
Cancer, ...	513	...	1	4	1	3	288	216	1	512
Diseases of Nervous System, ...	1,403	214	109	77	28	20	419	536	323	1,080
Diseases of Circulatory System, ...	1,192	34	8	41	31	22	557	499	42	1,150
Diseases of Respiratory System, ...	3,070	794	649	68	39	52	848	620	1,443	1,627
Violence, ...	426	22	50	37	13	28	210	66	72	354
Premature Birth, ...	476	476	...	...	...	...	...	...	476	...
Uncertified, ...	67	30	3	1	1	2	24	6	33	34
Other Causes, ...	3,046	904	163	98	38	70	902	871	1,067	1,979
All Causes, ...	14,483	3,563	2,253	673	330	437	4,316	2,911	5,816	8,667
Percentage at Different Ages,	1,000	246	156	46	23	30	298	201	402	598

The accompanying Chart has been prepared to show the preponderance of tubercular diseases and of other diseases of respiration in the volume of deaths formed by the several diseases indicated.

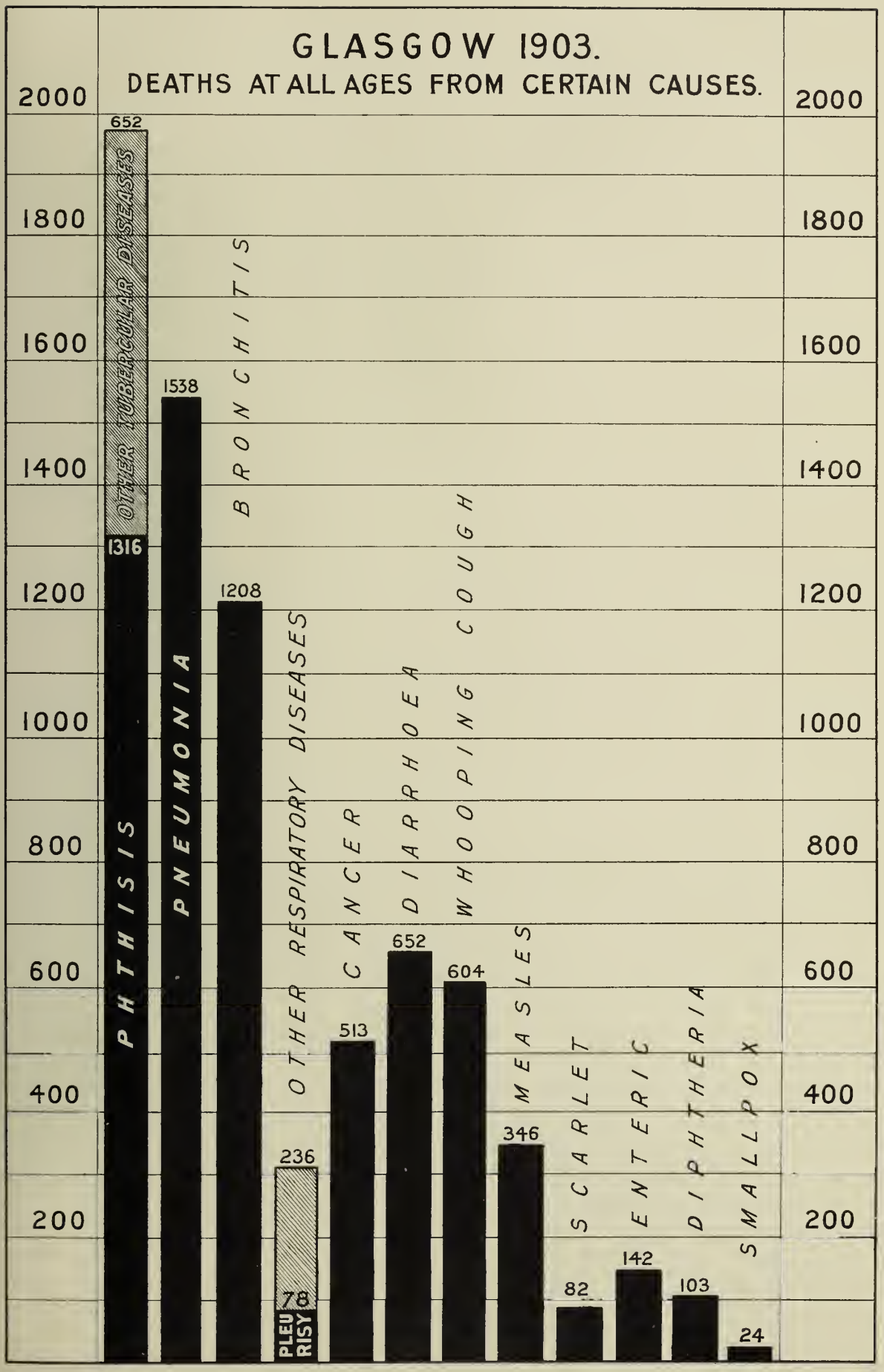

GLASGOW 1903.
DEATHS AT ALL AGES FROM CERTAIN CAUSES.
2000
1800
1600
1400
1200
1000
800
600
400
200
652
OTHER TUBERCULAR DISEASES
1316
PHTHISIS
1538
PNEUMONIA
1208
BRONCHITIS
236
78
PLEURISY
OTHER RESPIRATORY DISEASES
513
CANCER
652
DIARRHOEA
604
WHOOPING COUGH
346
MEASLES
82
SCARLET
142
ENTERIC
103
DIPHTHERIA
24
SMALLPOX

TABLE VII.

GLASGOW, 1903.—NUMBER OF DEATHS UNDER ONE YEAR AND DEATH-RATE PER 1,000 BIRTHS IN EACH MUNICIPAL WARD (EXCLUSIVE OF INSTITUTIONS AND SHIPPING).

MUNICIPAL WARDS.	Number.	Rate per 1,000 Births.
1. Dalmarnock, ...	291	140
2. Calton.	234	183
3. Mile-end, ...	271	152
4. Whitevale, ...	160	146
5. Dennistoun, ...	96	101
6. Springburn, ...	245	142
7. Cowlairs, ...	126	119
8. Townhead, ...	190	145
9. Blackfriars, ...	140	183
10. Exchange, ...	7	140
11. Blythswood, ...	6	177
12. Broomielaw, ...	53	199
13. Anderston, ...	135	132
14. Sandyford, ...	100	148
15. Park, ...	34	102
16. Cowcaddens, ...	272	194
17. Woodside, ...	186	121
18. Hutchesontown, ...	221	130
19. Gorbals, ...	154	151
20. Kingston, ...	174	164
21. Govanhill, ...	140	117
22. Langside, ...	44	69
23. Pollokshields, ...	22	117
24. Kelvinside, ...	16	73
25. Maryhill, ...	165	106
Institutions and Shipping, ...	81	...
CITY, ...	3,563	142

INFANTILE MORTALITY.

3,563 deaths of infants under one year occurred, which represents a death-rate per 1,000 born of 142, as compared with 128 in 1902. Of these deaths 3,116 were of legitimate and 447 of illegitimate children, representing rates of 132 and 298 respectively per 1,000 births of each class. For several years the rate per 1,000 born of each class has been—

	1898.	1899.	1900.	1901.	1902.	1903.
Infantile death-rate of legitimate children,	147	143	145	141	126	132
Infantile death-rate of illegitimate children,	302	286	286	269	244	298

and the rate of both classes during several periods has been as follows:—

Average of 5 years, 1886-90, = 143 per 1,000 births.
" 1891-95, = 146 "
" 1896-1900, = 151 "
" 1901, = 149 "
" 1902, = 128 "
" 1903, = 142 "

Compared with several large towns the infantile mortality in 1893-1902, and in 1903 is as follows:—

	1893-1902.	1903.
Glasgow, ...	**149**	**143**
Edinburgh, ...	142	121
Dundee, ...	177	142
Aberdeen, ...	145	136
Paisley, ...	131	131
Leith, ...	143	138
Greenock, ...	136	144
Perth, ...	130	99
London, ...	158	131
Liverpool, ...	189	159
Manchester, ...	188	169
Birmingham, ...	188	159

In Table VI., which shows the infantile death-rate in the several Wards, it will be seen that the average for the City is much exceeded in Wards XII. and XVI., which severally include the old sanitary districts of Brownfield and Cowcaddens, and also in Wards II. and IX.

In considering this question last year, attention was directed to the unequal distribution of these deaths throughout the several months of the first year of life, with the purpose of enquiring what proportion of them might reasonably be regarded as preventible by our present knowledge and methods of hygiene. It was shown that one-third of them occurred during the first four weeks immediately following birth — at an age, therefore, which suggested the operation of ante-natal causes tending to unfit the child for independent existence — and that one-half of the total deaths occurred during the first three months of life.

Pursuing this enquiry into the distribution of the various causes of death throughout the several months of the first year, we find certain indications that several of these may be grouped together and regarded as "constant" in their operation, and which, by reason of their volume, obscure to a considerable extent the reduction which has taken place in the other forms of fatal disease among children under one year.

It has been suggested that our decreasing birth-rate is being compensated by increased vitality in the children born; but the decrease in the birth-rate during the last thirty years amounts to about 20 per cent., while the infant mortality has only declined from 12 to 14 per cent. Moreover, vitality has a positive as well as a negative aspect. It is not merely the escape from perils which attend infant life; primarily it is the possession of certain physiological acquirements which make independent life possible. Vitality, therefore, is to be regarded as a quality of the child at birth rather than the accident of its surroundings afterwards.

But before we are in a position specifically to consider the direction which further effort to reduce the total sum of infant deaths should take, it is necessary to clearly recognise the several causes from which these arise, and with this object the two Tables which follow have been prepared.

TABLE VII. *(a).*

GLASGOW, 1903.—MALE INFANT DEATHS CLASSIFIED UNDER TEN PRINCIPAL GROUPS OF CAUSES OF DEATH, WITH RELATIVE GROUP PERCENTAGES, AND SHOWING AGES BY WEEKS AND BY MONTHS.

CAUSES OF DEATH.	Ages by Weeks.					Ages by Months.											Total.	Group Totals.	Group Percentages.	Death-rate per 1,000 Male Births.
	1st	2nd	3rd	4th	Total.	2nd	3rd	4th	5th	6th	7th	8th	9th	10th	11th	12th				
I. Immaturity, ...	310	55	44	26	435	74	48	19	14	5	10	3	9	5	4	8	...	634	31·8	50
(*a*) Premature Birth, ...	205	27	14	7	253	10	2	1	...	...	...	...	...	...	...	...	266	...	...	...
(*b*) Congenital Malformations, ...	9	2	1	1	13	...	2	...	...	...	1	...	...	...	...	...	16	...	...	...
(*c*) Atelectasis, ...	5	...	1	...	6	1	...	...	...	...	...	...	...	...	...	...	7	...	...	...
(*d*) Atrophy and Debility, ...	91	26	28	18	163	63	44	18	14	5	9	3	9	5	4	8	345	...	...	...
II. Diseases of Respiration, ...	4	10	15	17	46	42	53	41	27	28	31	36	48	46	31	41	470	470	23·6	37
III. Diseases of Digestion, ...	1	4	10	6	21	31	33	31	30	27	20	17	20	14	21	21	...	286	14·3	23
(*a*) Diarrhœal, ...	1	4	9	5	19	27	29	28	26	21	15	15	15	12	13	17	237	...	...	...
(*b*) Dentition, ...	...	...	...	...	...	...	...	...	...	3	2	1	5	1	6	4	22	...	...	...
(*c*) Others, ...	...	...	1	1	2	4	4	3	4	3	3	1	...	1	2	...	27	...	...	...
IV. Diseases of Nervous System, ...	16	7	11	6	40	19	15	18	10	18	14	10	14	21	14	11	204	204	10·2	16
V. Tubercular Diseases, ...	...	...	...	...	...	4	7	7	7	7	9	7	7	12	7	17	...	91	4·6	7
(*a*) Tabes Mesenterica, ...	...	...	...	...	...	1	1	...	1	3	2	...	2	3	1	4	18	...	...	...
(*b*) Tubercular Meningitis, ...	...	...	...	...	...	1	3	3	2	1	2	4	4	5	2	6	33	...	...	...
(*c*) Other Forms, ...	...	...	...	...	...	2	3	4	4	3	5	3	1	4	4	7	40	...	...	...
VI. Accidents of Birth, ...	12	...	2	...	14	...	...	...	...	...	...	...	...	...	...	...	...	14	0·7	1
(*a*) Injury, ...	11	...	1	...	12	...	...	...	...	...	...	...	...	...	...	...	12	...	...	...
(*b*) Umbilical Hæmorrhage, ...	1	...	1	...	2	...	...	...	...	...	...	...	...	...	...	...	2	...	...	...
VII. Infectious Diseases, ...	1	2	2	3	8	12	5	7	16	14	9	16	21	29	18	31	...	186	9·3	15
(*a*) Whooping Cough, ...	...	...	...	1	1	6	4	5	15	12	7	14	17	18	10	20	129	...	...	...
(*b*) Measles, ...	...	...	...	...	...	...	...	...	...	2	1	1	4	9	6	10	33	...	...	...
(*c*) Scarlet Fever, ...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	2	...	2	...	...	...
(*d*) Erysipelas, ...	...	..	...	1	1	...	...	...	1	...	...	1	...	1	...	...	4	...	...	...
(*e*) Syphilis, ...	1	2	2	1	6	6	1	2	...	...	1	...	...	1	...	1	18	...	...	...
VIII. Suffocation, ...	7	...	1	...	8	6	1	2	3	2	1	...	...	...	...	...	23	23	1·2	2
IX. Other Violence, ...	...	...	...	...	...	1	...	...	...	...	...	...	...	1	...	...	2	2	0·1	0·1
X. All Other Causes, ...	15	7	8	2	32	11	3	7	9	3	2	2	6	4	1	3	83	83	4·2	7
	366	85	93	60	604	200	165	132	116	104	96	91	125	132	96	132	...	1,993	100·0	158

TABLE VII. *(b).*

GLASGOW, 1903.—FEMALE INFANT DEATHS, CLASSIFIED UNDER TEN PRINCIPAL GROUPS OF CAUSES OF DEATH, WITH RELATIVE GROUP PERCENTAGES, AND SHOWING AGES BY WEEKS AND BY MONTHS.

CAUSES OF DEATH.	Ages by Weeks.					Ages by Months.											Total.	Group Totals.	Group Percentages.	Death-rate per 1,000 Female Births.
	1st	2nd	3rd	4th	Total.	2nd	3rd	4th	5th	6th	7th	8th	9th	10th	11th	12th				
I. Immaturity, ...	228	46	45	19	338	52	40	31	8	8	9	6	6	4	2	2	...	506	32·2	41
(*a*) Premature Birth, ...	144	20	21	11	196	11	3	1	...	...	1	...	...	...	...	...	212	...	...	...
(*b*) Congenital Malformations, ...	7	6	3	1	17	1	...	1	...	...	...	...	...	...	...	...	19	...	...	...
(*c*) Atelectasis, ...	7	...	...	...	7	1	...	...	...	...	...	...	...	...	...	...	8	...	...	...
(*d*) Atrophy and Debility, ...	70	20	21	7	118	39	37	29	8	8	8	6	6	4	2	2	267	...	...	...
II. Diseases of Respiration, ...	2	10	10	8	30	28	36	31	24	29	21	31	29	29	30	31	349	349	22·2	28
III. Diseases of Digestion, ...	4	2	3	4	13	25	25	28	30	22	12	13	22	15	12	14	...	231	14·7	19
(*a*) Diarrhœal, ...	3	1	3	4	11	23	23	26	26	18	10	11	21	12	9	12	202	...	...	...
(*b*) Dentition, ...	...	...	...	...	...	...	...	...	1	1	2	...	1	1	3	1	10	...	...	...
(*c*) Others, ...	1	1	...	...	2	2	2	2	3	3	...	2	...	2	...	1	19	...	...	...
IV. Diseases of Nervous System, ...	11	4	7	5	27	11	16	6	14	15	8	13	11	12	13	12	158	158	10·1	13
V. Tubercular Diseases, ...	...	...	...	...	...	4	1	2	5	2	3	8	8	3	5	12	...	53	3·4	4
(*a*) Tabes Mesenterica, ...	...	...	...	...	...	2	...	...	1	...	...	4	...	1	...	2	10	...	...	...
(*b*) Tubercular Meningitis, ...	...	...	...	...	...	1	1	1	2	1	1	1	4	2	3	3	20	...	...	...
(*c*) Other Forms, ...	...	...	...	...	..	1	...	1	2	1	2	3	4	...	2	7	23	...	...	...
VI. Accidents of Birth, ...	7	1	1	...	9	...	...	...	...	...	...	...	...	...	...	...	...	9	0·6	0·7
(*a*) Injury, ...	6	1	...	...	7	...	...	...	...	...	...	...	...	...	...	...	7	...	...	...
(*b*) Umbilical Hæmorrhage, ...	1	...	1	...	2	...	...	...	...	...	...	...	...	...	...	...	2	...	...	...
VII. Infectious Diseases, ...	...	2	2	5	9	14	18	12	10	13	11	23	17	20	23	25	...	195	12·4	16
(*a*) Whooping-cough, ...	...	...	1	2	3	8	10	9	7	12	8	18	13	11	14	19	132	...	...	...
(*b*) Measles, ...	...	...	...	...	...	...	...	1	1	...	3	4	4	7	9	6	35	...	...	...
(*c*) Scarlet Fever, ...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
(*d*) Erysipelas, ...	...	1	1	1	3	...	1	...	...	...	...	...	...	...	...	...	4	...	...	...
(*e*) Syphilis, ...	...	1	...	2	3	6	7	2	2	1	...	1	...	2	...	...	24	...	...	...
VIII. Suffocation, ...	5	2	2	4	13	2	3	1	1	...	...	1	...	...	...	...	21	21	1·3	2
IX. Other Violence, ...	...	...	...	...	...	1	...	...	...	...	...	...	...	...	...	...	1	1	0·1	0·08
X. All Other Causes, ...	6	2	8	4	20	6	2	3	6	3	...	2	...	...	3	2	47	47	3·0	4
	263	69	78	49	459	143	143	115	98	92	64	97	93	83	88	97	...	1,570	100·0	126

Regarding the form of grouping here adopted, and with special reference to the inclusion of "atrophy and debility" among those deaths which are here ascribed to immaturity, it may be urged that it includes deaths arising from the wasting diseases of childhood, and related, therefore, rather to the disorders of diet than to congenital defect. But, while this is undoubtedly the case, the large number of deaths attributed to these causes which occur in the early weeks seems to point to an initial defect in vitality, and has led to their inclusion in Group I.

In a similar way, although Groups IV. and V. represent the numbers certified under Diseases of the Nervous System and Tubercular Diseases respectively, it is probable that many deaths certified as "convulsions," "fits," meningitis, &c.—in reality result from intestinal disorders on the one hand, or from meningeal affections of a tuberculous character on the other.

Sex Incidence of Infant Deaths. — On examining the Tables the first feature of significance is that the infantile death-rate of 142 per 1,000 births for both sexes becomes resolved into a rate of 126 for females and 158 for males.

This is a feature of death-rates which obtains, with few exceptions, through every period of life, and its occurrence during the infant period is significant of the operation of a law of vitality which cannot at the moment be discussed.

If reference, however, be made to the column, "Group percentages," in each of the Tables, we find that in 1903 a greater number of deaths occurred from causes classed here as "Immaturity" * than from any of the other causes classified, and that diseases of respiration come next in order of fatality, and then diseases of digestion, which consist mainly of diarrhœal affections. For reasons already stated, it will be more accurate to regard the volume of nervous and tubercular diseases as forming together 13·5 per cent. of female deaths and 14·8 of male deaths than to regard the figures for each as representing the true proportion of tubercular and nervous diseases in the combination.

Infectious diseases as a class caused fewer deaths of male than of female children, and form 9 and 12 per cent. respectively of the total deaths.

The importance of fairly grasping the problem of infantile mortality may be indicated by considering the effect on the future expectation of life which survival to the end of the first year implies. At birth the expectation of life to a male child may be stated at 35·18 years, and the addition thereto at the end of each of the four years which follow thus—

Age.	Expectation of Life in Years.	+ Difference.
0,	35·18	—
1,	41·54	6·36
2,	45·25	3·71
3,	46·55	1·30
4,	47·03	·48
Increased expectation at 5th year,		11·85 years.

A child who has completed his fourth year has thus an expectation of future life which exceeds that at birth by almost twelve years, but it is to be observed that fully six of these have already been gained if he completes his first year.

Moreover, if this enquiry is carried into the several months of the first year, we find that 30 per cent. of the total deaths of male infants occur during

* This group corresponds with an almost identical classification under "Wasting Disease" by the Registrar-General for England. See 64th Annual Report for England and Wales, p. lxxii.

the first four weeks of life, and that of the total (1,993) occurring during the first year about half (969) have occurred during the first three months. In the Table VII. (*a*) of male deaths it will be seen that, of the 604 deaths occurring in the first month, 435 are classed as due to immaturity, and the relation which deaths in this class bear to the total may be gauged by a comparison of selected healthy with selected unhealthy districts. For this purpose I have chosen Langside, Pollokshields, and Kelvinside, which have general death-rates of 10·3, 9·6, and 8 per 1,000; and Calton and Cowcaddens, where the corresponding rates are 22·8 and 23·9.

	Total Infant Deaths.	Deaths due to Immaturity.	% of Total Deaths due to Immaturity.
Calton and Cowcaddens, ...	506	151	29·8
Langside, Pollokshields, and Kelvinside, ...	82	27	32·9

Disregarding for the present the difference in the proportion of deaths ascribed to immaturity in both groups, there is sufficient correspondence between them to suggest that the total number dying from all causes during the first year is not wholly determined by the external conditions to which child life is exposed, and that immaturity is but a *post-factum* method of expressing a physiological inefficiency, which may vary in amount when healthy and unhealthy districts are compared, but would appear to remain fairly constant for each.

And if, as these proportions indicate (and the figures for 1902 support the suggestion) the number of deaths from "immaturity" in a given district affords an index to the total deaths which will ultimately occur from other causes, and at subsequent periods of the first year, we should find it related to those other conditions which affect groups of population, and determine their general unhealthiness or otherwise.

This, indeed, may be shown by an appeal to the death-rate from immaturity in the groups of districts now under consideration.

The average infantile death-rate in Calton and Cowcaddens, as will be seen from the Table, is fully twice that of Langside, Pollokshields, and Kelvinside, while from immaturity alone the death-rate per 1,000 births in the first or City group of Wards is 56, and in the second or Suburban group it is only 26, or again the ratio is fully 2 to 1.

With this knowledge of how large a proportion of the deaths under three months result from immaturity, we may, by a comparison of their relation to the total infant deaths, ascertain at what period of the first year there has been any advance made within recent years. I have selected the years 1871-2 and 1902-3 for this purpose, and the numbers and proportions are as follows:—

		Number of Deaths.			
Year.	Infantile Death-rate per 1,000 Births.	—3 Months.	—6 Months.	—12 Months.	Total.
1871, ...	191 ...	1,460 ...	636 ...	1,512 ...	3,608
1872, ...	159 ...	1,335 ...	608 ...	1,255 ...	3,198
1902. ...	128 ...	1,663 ...	557 ...	948 ...	2,168
1903, ...	142 ...	1,712 ...	657 ...	1,194 ...	3,653
Percentage of Total Deaths occurring under 3, 6, and 12 Months.					
1871, ...		40 ...	18 ...	42 ...	100
1872, ...		42 ...	19 ...	39 ...	100
1902, ...		52 ...	18 ...	30 ...	100
1903, ...		48 ...	18 ...	34 ...	100

The increasing proportion of deaths here shown in the first three months of life is in reality due to a very considerable decrease which has taken place in the number occurring between six and twelve months. This will be made clearer by stating the deaths of each period in relation to the number of births. In 1871-2, 39,025 births occurred, and of these 2,795 died within

three months, representing a rate of 71·6 per 1,000 births. In 1902-3 the births numbered 49,857, and the deaths under three months 3,345, or 67 per 1,000. Contrasted with this, the deaths between six and twelve months in the first period formed 71 per 1,000 births, and in the latter only 43. It is right to observe that 1871 had, with one exception, the highest infantile death-rate on record, and 1902, owing largely to the reduction in diarrhœal deaths, the lowest; yet, making due allowance for these, there is a substantial difference between the two periods, and reasonable ground for regarding the causes of death in the later months of infant life at least as being amenable to those very measures which tend to reduce death-rates generally.

But the refractory character of the death-rate under three months, and the excessive waste of infant life which then occurs, are in a different category. To fully appreciate their significance we would require registration of still births, but that is outwith the scope of sanitary administration. It is sufficient to stimulate present action to know that two children die in the City Wards from causes which are only one-half as fatal to children born in the suburbs. Nor need we grope after a theory of action when the first requirement is precise information.

Improved sanitation is reclaiming many infant lives from those diseases which are common to children and adults, but the causes which we are now considering are outwith this class, and form fully 30 per cent. of the infant deaths. It is here that present methods of sanitation are failing, and probably must of necessity fail, except in so far as they influence the child through improvement in the health of the mother.

Broadly speaking, immaturity in the child results from inefficient dietary of the mother. How far this may arise from injudicious selection of food-stuffs alone may be illustrated by watching what occurs in the selection of children's food. Milk retailers in the poorer districts speak of skim milk as forming the staple diet of bottle-fed infants, and the lack of discrimination in the choice of artificial foods for infants is too well known to need emphasis. Moreover, the enquiry which has just been begun into the physique of Glasgow school children points to inefficient dietary as frequently arising from an excess of starchy food, to the neglect of those containing suitable proportions of fat and proteids. These illustrations will serve to emphasise the need for teaching girls the food-value of the materials which they are now being taught to cook, and in this direction the Education Authority may definitely help the advance of public hygiene. Calculations of dietary scales might be with advantage introduced as exercises in arithmetic.

In another direction the Corporation may make additional effort. We already obtain from the Registrars information of every birth as it is registered, and in the worst portions of the City the utilisation of this information for the purpose of offering some guidance to the mother, both regarding her own dietary and the management of her infant, would constitute a step in advance, and might from the first reclaim some portion of the present wastage of infant life.

During the year the Corporation resolved to establish a depot for the preparation of milk for infants' food, but as the premises are only now approaching completion the scope of the intended work need only at the present be indicated by embodying the Report in which its formation is recommended:—

REPORT BY DEPUTATION ON INFANT MILK DEPOTS.

The Sub-Committee appointed in January last (1903) have now had an opportunity of visiting the Municipal Depots in Battersea, Liverpool, St. Helens, and Bradford, and beg to submit the following report:—

Before discussing the methods employed in treating the milk, it will be desirable to consider the object of these several institutions.

When milk is drawn from the udder of a healthy animal, and precautions are taken to exclude organisms from external sources, it may be said to be germ free.

But under the usual conditions of milk production, the dust of the byre, the surface of the udder, the bedding of the animals, the hands and clothes of the milker, and especially the buckets or pails into which the milk is drawn—all contribute in varying proportions to produce an initial bacterial impurity which, under suitable conditions of temperature, rapidly increases.

In the shop of the retailer and in the house of the consumer the bacterial contents are further added to, so that a milk which on leaving the farm may have shown relatively few organisms may, in the house of the consumer, twelve or fifteen hours afterwards, be found to have increased ten, twenty, or forty fold, or even more. The multiplication of these organisms "sours" milk, and it is with the view of preventing this that the so-called milk preservatives—formaline, salicylic acid, boracic acid, &c.—are used. Sterilising by heat is another method of accomplishing the same object. The milk is not freed from the organisms by either method, but to a large extent they are killed or their growth for the time inhibited. In the municipal schemes presently in operation, and in some commercial companies, the prepared milk is sold in sealed bottles, which are not intended to be opened until the time of consumption, so that the addition of any impurity subsequent to sterilisation is avoided. The value of this precaution cannot, we think, be readily over-estimated. In addition to sterilising, the milk sold at the municipal depots is adapted for the use of infants by dilution and the addition of cream and sugar, in proportions varying with the age for which it is intended.

With this general description of the object, the following notes on several of the local methods already in operation may be introduced:—

Battersea.

The principal depot at Battersea consists of a shop in which the milk is retailed, and several apartments where the mixing and sterilising is performed. There are also three other distributing centres at different parts of the town obtaining their supplies from the principal depot, and an arrangement has been made with the Guardians whereby the Relieving Officers issue orders on the depot as one form of out-door relief. The following description of the method employed is from a Report by the Medical Officer of Health of Battersea:—

"The milk is supplied by a local dairyman, and arrives in the early morning. It is guaranteed free from chemical preservatives, and to contain not less than 3·25 per cent. butter fat. The first process is the modification or humanisation. Three modifications are employed. The first contains one part milk to two of water, seven ounces of cream and seven of lactose being added to each gallon of the mixture. This modification is given to infants under three months old. The second modification, which is given to infants between three and six months old, consists of equal parts of milk and water, with five ounces of cream and lactose added per gallon. The third consists of two parts milk to one of water, with three ounces of cream and lactose added per gallon, and is given to infants over six months old.*

"The milk having been modified, it is bottled, and the number of bottles and the quantities contained are set out below:—

No.	Age.	No. of Bottles per Day.	Amount per Bottle.	Amount per Day.
1	Below 2 weeks old, ...	9	1½ oz.	13½ oz.
2	Between 2 weeks and 2 months old, ...	9	2½ ,,	22½ ,,
3	,, 2 and 3 months old, ...	8	3 ,,	24 ,,
4	,, 3 ,, 4 ,, ,, ...	7	4 ,,	28 ,,
5	,, 4 ,, 5 ,, ,, ...	7	4½ ,,	31½ ,,
6	,, 5 ,, 6 ,, ,, ...	7	5 ,,	35 ,,
7	,, 6 ,, 8 ,, ,, ...	6	6 ,,	36 ,,
8	,, 8 ,, 12 ,, ,, ...	6	7 ,,	42 ,,

* It is scarcely necessary to remark that these quantities are dependent on the proportions of fat, sugar, and albuminoid substances originally present in the milk dealt with.

"After bottling, the stoppers are closed, and the bottled milk is heated by steam, and kept at a temperature of 212° Fahr. for from five to ten minutes. It is allowed to cool, and this is supplied to the consumers. Each mother, on first coming to the depot, is given a leaflet of instructions as to the proper method of using the milk. The method is very simple. When feeding time arrives, all she has to do is to place the bottle, unopened, in some warm water till the milk has reached body temperature. The bottle is then opened, a small teat put on the mouth, and the baby takes its milk from the sterilised bottle direct. The use of the long-tube feeding-bottle is obviated."

To a large extent the experience here is common to all similar depots, suggesting a tendency on the part of the patrons to regard the product as being more of the nature of medicine than food, so that, while many children are brought to the depot seriously ill with diarrhœa and other digestive disorders, the milk is discontinued after they have recovered.

The accommodation of the sterilising depot at Battersea is presently taxed, and at the moment the authorities are unable to expand the business. At the end of 1902, 300 children were being fed; in March of the present year the number had risen to 360. At the time of our visit about 350 baskets a day, with the average of eight bottles per basket, were being sold.

The Corporation pay 9½d. per gallon for milk, and 1s. 4d. for cream. The charge for the full weekly supply of humanised milk for infants under six months is 1s. 6d., and 1s. 9d. and 2s. per week for older children. Children beyond the burgh pay 6d. per week more.

Up till the present time the work has been conducted at a loss equal to £150 annually.

Only one or two complaints have reached the depot regarding the character of the milk as delivered.

The influence of the depot on the health of the children fed therefrom was dealt with by the Medical Officer of Battersea in a paper read before the Congress of the Sanitary Institute at Bradford, but need not be further referred to here, as the general question of the relationship between the infantile death-rate and milk depots is considered at a subsequent stage of this Report.

Liverpool.

The premises in Liverpool are of a more recent construction than those at Battersea, but in its main features the work is conducted on the lines already indicated. Owing, however, to questions having arisen with the milk vendors of Liverpool, an arrangement has now been made by which the milk prepared at the depot is sold also through retail milk dealers. The depot is presently conducted at a loss of about £500 annually. The total number of babies who are or have been on the register of the depot here is about 5,000.

St. Helens.

Here we had an opportunity of seeing the plant as introduced in connection with the first municipal depot started in this country. There is considerable apathy on the part of the inhabitants, and the use of the sterilised product is not extending. The annual sum paid for the milk is £160, which after treatment yields a return of £187.

Bradford.

The depot here was only opened a few days prior to our visit, but the lines on which the work is conducted are similar to those already described.

The chief object of these depots is to supply sterilised and modified milk to infants, with the hope that it may help to reduce the infantile mortality, and at each of those which were visited several of the customers who were interviewed expressed their extreme satisfaction at the results produced by the milk on their individual children. We, however, could find no satisfactory evidence that the infantile death-rate has been appreciably influenced, although it is obvious that the substitution of a suitable for an unsuitable food must influence the healthy development of the young child. It appears to us, however, that the effect, so far as expressed on a death-rate, is to be sought ultimately in connection with the diarrhœal mortality rate of the autumn months, rather than in the whole volume of the diseases from which infantile

deaths arise, although it must be remembered that the largest depots must, after all, supply only a fraction of the number of children in a given population, and probably will not reach that section on which infantile mortality most heavily falls.

But we think that another and scarcely less important function may be served by Infant Milk Depots, as will be afterwards indicated.

While in London we had an opportunity of visiting the St. Francis Hospital for Infants, Hampstead Heath. Here the children range from a few weeks to several months, and they are all fed on modified milk obtained from the laboratories of the Walker-Gordon Company. "The primary object of modified milk as prepared in these laboratories is to afford an accurate means of prescribing a substitute food for infants containing the essential constituents of breast milk, viz., fat, albuminoids, and milk-sugar, combined in such proportions as will suit the requirements of each individual infant."

This description of the aim of the Walker-Gordon Laboratories is taken almost verbatim from a circular issued by the Company, and a more detailed description of the method will be found in a document (No. 441) issued by the Senate of the United States in connection with "A Bill to Regulate the Production and Sale of Milk and Cream in the District of Columbia," June, 1902, Appendix F. ("Impure Milk in Relation to Infantile Mortality").

On a review of all we have seen and learned by personal enquiry and perusal of some of the literature of the subject, which has recently been voluminous, we have arrived at certain definite conclusions.

Infantile mortality has a definite relationship to (*a*) the feeding of infants, (*b*) personal care of infants by parents, and (*c*) housing accommodation. Other elements enter into the problem, but, so far as municipal action is concerned, those are the three main elements. It is clear to us that housing schemes, unless associated with efforts calculated to meet difficulties arising out of the first two conditions, will be disappointing in reducing infantile mortality. We also believe that, if we can succeed in raising the quality, as regards purity, of the milk on which infants are fed, we shall at the same time educate and improve the sense of duty towards their infants on the part of parents. The mischief lies in polluted milk. The sources of the pollution are not only in unsatisfactory methods of milking, and in storing and conveying the milk supplied, but also very largely in dirty domestic conditions, and particularly in carelessness in the use of feeding bottles. To successfully attack, by municipal administration, all the sources of pollution is presently impossible, but the ideal of health administration is a pure milk supply which needs no sterilisation; and towards that end all our efforts should be directed. Meanwhile we must do the best possible under existing conditions, and that involves sterilisation.

We therefore recommend that the Corporation should agree to the principle of supplying milk for infant-feeding in poor localities. That involves—

(1) The setting up of an establishment for the preparation of the milk supplied, modified and sterilised according to requirements, the necessary machinery and appliances for which would not cost more than £650.

(2) Depots for the sale of the milk, or, following the example of Liverpool, it might also be supplied through the milk dealers, an allowance for retailers' profit being made.

The staff required would neither be large nor costly. We think the experiment should be made in three or four of the districts where the infantile mortality is high. The price at which the milk could be sold, consistent with reaching the poorest, would, we believe, be no more than is presently paid for ordinary milk; and, in any case, even were it necessary in order to reach those most in need of this form of assistance, a small charge upon the health rate would be justified by the result.

In order that an experiment on these lines may be thoroughly tried, we would suggest that it be remitted back to the Committee on Health to take the necessary steps.

W. F. ANDERSON.
JOHN CARSWELL.
A. K. CHALMERS.

22nd September, 1903.

INFECTIOUS DISEASES.

During the year 16,487 cases of infectious disease were registered and dealt with by the Department. This represents a rate equal to 21 per 1,000 of the population, as compared with 17·3 for 1902. Of the total, 5,480, or 33·2 per cent., were treated in hospital. The varying rates of incidence in the several Wards are shown in Table VIII., but it must be remembered that these afford an accurate attack-rate for those diseases only which are notifiable under the Infectious Diseases (Notification) Act. On the other hand, for measles and whooping-cough, which are here grouped with phthisis and anthrax in the column "All others," the rates given indicate only the cases known and dealt with.

The composition of the rate is shown in the following table, and for comparison the corresponding figures for 1902 are introduced:—

GLASGOW, 1903.—CASE-RATE PER MILLION OF THE POPULATION FOR CERTAIN ZYMOTICS AND FOR ALL CASES OF INFECTIOUS DISEASES REGISTERED.

YEAR.	Typhus Fever.	Enteric Fever.	Continued and Undefined.	Puerperal.	Smallpox.	Scarlet Fever.	Diphtheria and Membranous Croup.	All Others.	TOTAL.
1902, ...	46	899	22	116	592	3,229	794	11,590	17,288
1903, ...	41	**1,207**	22	138	373	2,597	**926**	**15,776**	**21,080**
+ Difference, 1903,	...	308	...	22	...	...	132	4,186	3,792

Enteric and Puerperal Fever and Diphtheria were relatively more prevalent in 1903, as were also Measles and Whooping-cough, which are here included in the column "All others." On the other hand, Typhus Fever, Smallpox, and Scarlet Fever were relatively less prevalent than in 1902.

If reference be made to Table V. in the Appendix, the number of cases occurring and of those removed to hospital in each Ward will be found, and in Table VI. the distribution of these cases throughout the several months of the year.

The case-rate for each of the Wards is as follows:—

TABLE VIII.

GLASGOW, 1903.—CASE-RATE PER MILLION FOR CERTAIN ZYMOTICS AND FOR ALL CASES REGISTERED IN EACH MUNICIPAL WARD.

MUNICIPAL WARDS.	FEVERS.				Smallpox.	Scarlet Fever.	Diphtheria and Membranous Croup.	* All other Causes.	TOTAL.
	Typhus.	Enteric.	Continued and Undefined.	Puerperal.					
1. Dalmarnock, ...	117	1,108	19	155	777	1,496	661	24,856	29,189
2. Calton, ...	97	1,363	48	219	487	1,071	487	16,742	20,515
3. Mile-end, ...	46	1,630	23	161	872	1,721	734	19,278	24,465
4. Whitevale, ...	...	1,490	57	143	602	3,008	773	13,034	19,107
5. Dennistoun, ...	...	821	...	117	117	4,395	1,524	16,702	23,676
6. Springburn, ...	23	1,441	...	140	70	2,952	651	9,879	15,156
7. Cowlairs, ...	...	940	...	34	101	2,518	806	12,860	17,259
8. Townhead, ...	...	1,262	48	73	291	1,820	874	20,579	24,947
9. Blackfriars, ...	42	1,637	...	252	294	1,889	630	15,912	20,656
10. Exchange, ...	...	753	...	...	...	1,883	753	6,777	10,166
11. Blythswood, ...	...	254	...	...	...	1,782	764	5,601	8,401
12. Broomielaw, ...	...	1,793	105	211	316	1,899	211	11,708	16,243
13. Anderston, ...	65	1,467	...	163	98	2,967	946	6,194	11,900
14. Sandyford, ...	...	451	...	113	527	2,407	903	7,561	11,962
15. Park, ...	...	272	...	39	...	2,410	1,322	3,420	7,463
16. Cowcaddens, ...	...	2,458	24	97	170	1,752	852	20,511	25,864
17. Woodside, ...	...	767	...	87	175	3,045	1,139	16,735	21,948
18. Hutchesontown, ...	24	1,239	...	119	476	3,121	1,000	23,727	29,706
19. Gorbals, ...	215	1,848	27	321	321	2,893	911	15,803	22,339
20. Kingston, ...	141	1,383	28	141	254	1,666	565	19,761	23,939
21. Govanhill, ...	...	562	...	148	237	4,203	1,184	20,570	26,904
22. Langside, ...	33	266	...	...	33	4,589	1,131	4,556	10,608
23. Pollokshields, ...	...	177	...	59	...	2,414	1,884	3,297	7,831
24. Kelvinside, ...	...	306	...	102	102	2,348	1,123	1,990	5,971
25. Maryhill, ...	...	682	...	105	...	2,647	734	19,501	23,669
— Institutions and Harbour, ...	...	...	...	...	...	...	...	...	...
CITY, ...	41	1,207	22	138	373	2,597	926	15,776	21,080

* Measles, Whooping-cough, Chickenpox, Phthisis, and Anthrax.

The populations on which these rates are calculated include Institutions and Harbour.

INFECTIOUS DISEASES (NOTIFICATION) ACT.

The cost per 1,000 of the population for Notification Fees since 1891 is as follows:—

GLASGOW.—AMOUNT PER 1,000 OF POPULATION OF FEES FOR CERTIFICATES UNDER THE INFECTIOUS DISEASES (NOTIFICATION) ACT, 1899, FOR EACH YEAR FROM 1891.

Year.	Amount. £	s.	d.
1891,	1	1	10·4
1892,	1	6	1·2
1893,	1	6	9·2
1894,	1	4	8·7
1895,	1	1	5·0
1896,	0	18	0·1
1897,	0	18	0·1
1898,	1	0	9·0
1899,	1	3	10·0
1900,	1	2	1·0
1901,	1	4	5·9
1902,	0	16	7·4
1903,	0	14	0·5

PRINCIPAL ZYMOTIC DISEASES.

The number of deaths arising from the principal zymotic diseases—small-pox, diphtheria, scarlet fever, typhus, enteric and undefined fevers, measles, whooping-cough, and diarrhœa—in 1903 was 1,960, representing an annual death-rate of 2·507 per 1,000 living, as compared with 2·072 in 1902.

The corresponding rates for several periods were—

1881-90,	3·600 per 1,000 living.
1891-1900,	3·282 „
1900,	3·013 „
1901,	3·773 „
1902,	2·072 „
1903,	2·507 „

In the following Table the corresponding rates for several towns are given:—

PRINCIPAL ZYMOTIC DISEASES.*

	Death-rate per 100,000. 1893-1902.	1903.
Glasgow,	**329**	**182**
Edinburgh.	257	131
Dundee,	269	74
Aberdeen,	249	129
London,	264	177
Liverpool,	343	251
Manchester,	332	254
Birmingham,	302	232

* See note under Births, p. 15.

In Table IX. the number of deaths and the death-rate from diseases of this class are stated for each of the Wards, and the following summary will show the constitution of the zymotic death-rate in those Wards in which the combined rate much exceeds the mean-rate for the population as a whole:—*

Municipal Wards.	Total Zymotics.	Smallpox.	Diphtheria.	Scarlet.	Typhus.	Enteric.	Undefined.	Measles.	Whooping-cough.	Diarrhœa.
Broomielaw, -	4.558	240	120	120	...	120	...	720	1,319	1,919
Calton, -	4,132	...	128	51	51	282	...	821	1,130	1,699
Mile-end, -	4,031	69	139	116	...	394	...	788	1,112	1,413
Cowcaddens, -	3,929	...	225	...	...	450	...	776	1,577	901
Dalmarnock, -	3,873	59	157	59	...	256	...	610	1,121	1,612
City, - -	2,507	31	132	105	8	182	1	442	772	834

*The very large proportion of this rate which is contributed by Measles, Whooping-cough, and Diarrhœa, will be seen by adding together the rates for these diseases and comparing it with the total Zymotic rate given in the first column.

TABLE IX.

GLASGOW, 1903.—PRINCIPAL ZYMOTIC DISEASES.

MUNICIPAL WARDS.	Deaths.	Death-rate per Million.
1. Dalmarnock, ...	197	3,873
2. Calton, ...	161	4,132
3. Mile-end, ...	174	4,031
4. Whitevale, ...	91	2,694
5. Dennistoun, ...	61	1,876
6. Springburn, ...	93	2,248
7. Cowlairs, ...	64	2,149
8. Townhead, ...	105	2,626
9. Blackfriars, ...	66	2,859
10. Exchange, ...	2	896
11. Blythswood, ...	4	1,112
12. Broomielaw, ...	38	4,558
13. Anderston, ...	67	2,275
14. Sandyford, ...	59	2,227
15. Park, ...	21	842
16. Cowcaddens, ...	157	3,929
17. Woodside....	96	2,103
18. Hutchesontown, ...	114	2,716
19. Gorbals, ...	82	2,244
20. Kingston, ...	92	2,647
21. Govanhill, ...	63	1,865
22. Langside, ...	29	979
23. Pollokshields, ...	12	707
24. Kelvinside, ...	7	371
25. Maryhill, ...	59	1,622
— Institutions and Harbour, ...	46	...
	1,960	2,507

SMALLPOX.

From August, 1902, till September, 1903, no case of indigenous smallpox occurred, save in the wife of one of the seamen referred to in the following paragraphs.

In January and February, and again in May, the disease occurred in seamen recently returned from voyages to Spanish ports, and the circumstances attending each are described in the extracts from the fortnightly reports which are appended.

(*Extract from Report for Fortnight ending 10th January.*)

The following history of a case of sea-borne infection is of interest:—

The ship left Seville for the Clyde on 21st December last, and on the same day a Spanish fireman, who had newly joined, complained of feeling unwell. On the 24th December the captain found him covered with an eruption, and, suspecting smallpox, put into Falmouth to land the patient. At the same time the ship's cook was also landed, as he complained of feeling ill, and it was thought he might be sickening of the disease. On arrival in the Clyde the ship was first berthed in Prince's Dock, Govan, but on 1st January came over to Queen's Dock, whereupon the crew were re-vaccinated, and subsequently inspected daily by Dr. Dittmar, arrangements being made with the owners to keep them on board. On 6th January one of the seamen was found complaining of severe headache and other symptoms suggestive of the onset of smallpox. He was removed on the same day to hospital, where the eruption has since developed, and the case been verified as one of smallpox. The cook, who was landed at Falmouth on suspicion of smallpox, afterwards came to Glasgow. He was re-vaccinated, and kept under observation.

No further cases have occurred.

(*Extract from Report for Fortnight ending 21st February.*)

On Saturday, 15th February, a Spanish seaman was removed to hospital from a seamen's boarding-house in James Watt Street suffering from smallpox. He arrived in the Clyde from Bilbao on the previous Sunday, 8th February, on a steamer which berthed in Govan. He remained by the ship, and sickened on board on 12th February, removing to the lodgings already noted on the 14th.

(*Extract from Report for Fortnight ending 16th May.*)

Two cases of smallpox have been registered during the fortnight—a seaman and his wife, the latter being seven days in intimate contact with infection before being re-vaccinated. The husband sickened on the 30th April, was recognised as suffering from smallpox, and removed to hospital on 7th May; his wife sickened on 14th. The husband was employed on board a ship trading with Spanish ports. He forms the third illustration since January of sea-borne infection, the details of which are contained in the following note by Dr. Knight:—

Since the beginning of the year three cases of smallpox have been imported into the City by shipping, and in each instance the infection has been brought from Spain.

The first case arose on a ship which had been reported from Falmouth as smallpox-infected. This ship came first to Govan, and afterwards to a berth in Queen's Dock. Whilst in the latter, and under observation, the patient in question sickened of the disease, and was removed to hospital.

The second ship also came to Govan, and the seaman who developed smallpox remained on board till he turned ill. He then went to a seamen's boarding-house in Glasgow, where his illness declared itself.

The third case is the first of those occurring during the present fortnight. The ship in this case also came to Govan, arriving on 26th April. Patient was discharged on 28th ultimo, and sickened at his residence in Glasgow on 29th. He was seen and recognised as suffering from smallpox on 7th May, and removed to hospital. Of the forty persons over five years of age who resided in the infected land, twenty were found to have been re-vaccinated.

(*Extract from Report for Fortnight ending 25th July.*)

A case of smallpox occurring in Gourock was brought to notice during the fortnight, owing to the existence of several associates in Glasgow with the household.

(*Extract from Report for Fortnight ending 22nd August.*)

On the 10th instant information was received from H.M. Customs, followed by a letter from the Medical Officer of Health, Falmouth, that a ship bound from Seville to Glasgow had landed a case of smallpox at Falmouth on the 8th, and was expected to be in Glasgow on the night of the 10th.

The ship arrived in the afternoon of the 11th in Queen's Dock, and was at once inspected.

The following account of the voyage was obtained:—The ship left Penarth on the 24th June for Barcelona, where she arrived on the 3rd July. The stay in Seville lasted from 27th July to 2nd August. On the following day a fireman was found to be ill, with an eruption out on his skin. He was at once isolated in the chart room, and the captain made for Falmouth, where the patient was taken to the Isolation Hospital. The ship was disinfected, and several of the crew re-vaccinated.

In Glasgow those who were willing were at once re-vaccinated, and the whole crew were kept under observation till the ship left.

No further cases occurred during the stay of the ship in harbour.

Attention has been previously directed to the danger which Glasgow incurs in the trade with Spanish ports from imported infection.

In September a definite re-invasion began, the disease being on this occasion introduced by a worker from the Talla Water-works, Peeblesshire, and by the end of the year 292 cases in all were registered, among whom 24 deaths occurred, which represents an attack-rate of 373, and a death-rate of 31 per million of the population.

All these cases were treated in hospital, save in one instance, where discovery only followed the recognition of the disease in a neighbour. By this time the earlier case had recovered, the other members of the family escaping infection. Three of these were adults, and had been successfully re-vaccinated three years before, while the fourth was an infant of one year, primarily vaccinated.

The re-invasion just referred to occurred under the circumstances related in the extract from the report for the fortnight ending 17th October, 1903, and its subsequent spread is indicated in those which follow:—

(*Extract from Report for Fortnight ending 17th October.*)

On Monday, 21st September, intimation was received from Govan Parochial Board that a man, probably suffering from smallpox, had consulted their medical adviser, and was presently in their side-room at Carlton Place. The history of the patient was that he had left Talla Water-works on 12th September, and come by train to Glasgow, staying that and the following night at one of the South-Side model lodging-houses. Thereafter he went on to another "Model," where he sickened, and where the subsequent cases have occurred.

He dates his illness from 15th September, and, as he was out of work, he moved about between that and the 21st.

Subsequently six cases occurred, sickening on 30th September, 1st, 2nd, 4th (two cases), and 5th October, the last-mentioned having been removed to hospital on 8th October. All the cases have occurred among persons sleeping in the same dormitory as the first patient, suggesting that the infection has been obtained in the lavatory thereof.

On the first case occurring, and considering the free movements of the man during the time of his sickening, intimation was sent to all the "Models."

Re-vaccination.—Enquiry was also made as to the condition regarding re-vaccination of the inmates of the "Model," and of those examined the proportion found with satisfactory evidence of re-vaccination was about 9 out of 10. Among the 10 per cent.,

however, it was quite impossible to get any to consent to re-vaccination, but several of the staff who had not been formerly re-vaccinated were done.

On the occurrence of the second case, the proprietor of the "Model" in question was told that he must admit no new-comers unless those who were willing to be re-vaccinated, or presented evidence of successful re-vaccination. Under this arrangement 22 have been done, the condition being that they obtain a bed for the night on which they are re-vaccinated and for the six nights following the evening on which the evidence is present that the vaccination is proving successful. Under this arrangement the proprietor of the "Model" is to receive the sum of 2s. 4d. for each successfully re-vaccinated inmate.

Among the original inmates, only two have now accepted re-vaccination.

(*Fortnight ending 31st October.*)

Twenty-four cases of smallpox were registered during the fortnight, distributed as follows:—

One was removed from "Model A," referred to in former Report.

Twenty contracted their infection in "Model B," and 16 were removed therefrom, while 2 were removed from private addresses on the South-Side, one occurred in a lodging-house in Miller's Place, and another in a lodging-house on the north side of the river.

One case admitted from the City Poorhouse proved to be smallpox. He has been associated at work on the quays, where several of the earlier cases had also been employed.

The woman removed from the lodging-house in Miller's Place was employed as a washer in a "Model" on the South-Side, but not, so far as known, in either of the infected "Models."

One case was removed from Dalmarnock Street.

So far the majority of the cases had occurred among the inmates of the lodging-houses, but in the next fortnight it is noted that an increasing number of cases was occurring among the general population.

(*Fortnight ending 14th November.*)

Nineteen cases of smallpox were reported during the past fortnight, in place of 24 during the previous one. Towards the end of the fortnight, however, the distribution of the cases assumed a gravity which is not suggested by the decrease in the numbers notified, and since the fortnight has closed this impression has been confirmed.

Up till the evening of Friday, 13th current, of 50 cases which had come to the knowledge of the Sanitary Department, 39 had occurred among the inmates of six model lodging-houses (22 being from one house alone), and only 11 among the general population, while of these 11 one or two had been indirectly associated with infected "Models." On the days immediately following, however—viz., on 14th and 15th November—11 cases were admitted to hospital, of which one only was from a model lodging-house, and most were quite without any history of association with a known source of infection. Six of these were removed from the Eastern District, two from each of the Central and Northern, and one from the Southern—a distribution of the disease which suggests that its further spread among the imperfectly vaccinated is to be apprehended.

Close observation is being continued of the condition as to vaccination of recent successful performance of the operation.

Apart from the natural movements of population, which will have tended to reduce the proportion re-vaccinated in recent years, there remained after these former efforts a not inconsiderable proportion of the adult population imperfectly protected, and it is again desirable that some effort should be made to induce such persons to avail themselves of this protection. For the present it is practically impossible to obtain any re-vaccinations, save in infected tenements.

(*Fortnight ending 28th November.*)

Forty-five cases of smallpox were removed to hospital during the fortnight, in place of 19 during the previous one. Ten of these cases were removed from formerly

infected "Models," and 3 others had been in "Models" when infection occurred. Among the number were 5 children under ten years of age, in none of whom were vaccination marks discoverable.

For comparative purposes it is desirable to group the distribution of the cases now occurring according to the old sanitary districts, and this shows that, of the total occurring during the fortnight, 14 were in the Eastern District, 12 in the Central, 9 in the South and South-Suburban, 7 in the North, and 3 in the West. Reference was made in the Report for last fortnight to the difficulty in obtaining any extension of re-vaccination beyond the immediate neighbourhood of infected houses, but, in view of the recurring excess (31 per cent.) of cases in the Eastern District, the Inspectors were, after consultation with the Chairman, distributed—whenever the demands of their own districts had been satisfied—throughout this district, with direction to make a house-to-house visitation, and offer re-vaccination wherever it was required. This effort, so far, has only been attended by a moderate degree of success. *Indeed, as our past experience shows, until something akin to apprehension takes possession of the public mind, the numbers who will resort to re-vaccination from purely prudential motives are comparatively small.*

Everything at the moment points to a period of considerable anxiety during the ensuing months.

The Engineers of the Tweedsmuir Water-works, near Broughton, were good enough to inform me during the past week of the occurrence of smallpox among the navvies employed there, and they also added that some forty or so of the men had left for addresses unknown, although they anticipated that some of them might reach the lodging-houses in Glasgow. Subsequently three of these men presented themselves at one of the lodging-houses, and on being told that admission could only be had on condition that they would be re-vaccinated, they left, refusing to give any address.

The part played by this portion of the population in disseminating smallpox has frequently been under review, and it would be to the public advantage if some legislative method of following or controlling their movements existed. Similar powers already exist in connection with contacts with sea-borne infection of a certain type, and it would only be an extension of an already recognised principle to apply similar powers to smallpox contacts under the circumstances alluded to.

(*Fortnight ending 12th December.*)

Forty-six cases of smallpox were registered during the fortnight, compared with 45 during the previous one.

Of these, 21 were registered in the Eastern, 8 in each of the Southern and Western, 6 in the Central, and 3 in the Northern Districts. Of the Western cases, four occurred in one household of nine persons living in a two-apartment house—the father and two children—all of whom sickened subsequently to an unrecognised attack in a boy of sixteen, who had remained at work during the whole period of his illness preceding the recognition of the disease in the others.

The circumstances attending the recognition of one of the cases included in the Southern group are also deserving of notice. The patient here resided in Rutherglen, and had been in attendance weekly at one of the dispensaries in town for some skin affection, but of so slight a character were the special circumstances due to smallpox that he had attributed them to some passing cause, until enquiry, directed to ascertain the residence of a contact with another source of infection, led to his discovery. These cases constitute a grave public danger, because the trivial character of the symptoms places no restriction on the movements of the patient.

Only three of the cases were associated with "Models."

Eleven of the cases admitted presented no vaccination marks, and seven of these were children under ten years of age.

Of the vaccinations carried out during the fortnight, 134 were in lodging-houses and 615 among the general population.

Since the present outbreak began 150 cases of the disease have been registered, and in no instance has there been evidence or even history of successful vaccination during its recent prevalence. On the other hand, we have had repeated illustrations of the disease invading a tenement and selecting the only household in which re-vaccination had not been performed.

The following extracts from a correspondence with Dr. Brock, County Medical Officer, Midlothian and Peebles, have reference to the difficulty of following the movements of smallpox contacts under the circumstances described:—

[Letter, Dr. Chalmers to Dr. Brock, 4th December.]

You will observe from the closing sentence of the extract that I had before me the desirability of obtaining for smallpox contacts, in these circumstances, some equivalent to the information which can be acquired under Paragraph 15 of the Cholera Order for contacts with the diseases to which that Order applies.

I had before me also the provisions of Sections 47 (4) and 66 (1) of the Public Health Act with reference to the provision of reception-houses, and the removal thereto and detention therein of persons who have been exposed to infection, although the apparent limitation of the former clause to persons resident in "an infected or recently infected house or tenement" scarcely seemed to cover the opportunities of infection which I conceive to exist in the special circumstances of the Talla encampment.

Here, however, I am venturing on a surmise which your more immediate knowledge of the local conditions may enable you to correct; but the committee felt that it would be desirable to place the question as it appeared to the Local Authority of a district into which some of these contacts were likely to come before the Local Authority of Peeblesshire, with the object of enquiring whether the reception-house clauses of the Public Health Act are serviceable in the special circumstances of Talla, or whether some concerted action, with the view of obtaining a better control, might not be desirable.

I should add that at the time of the meeting three only of the Talla men were known to have sought accommodation in one of the model lodging-houses of Glasgow, and that since then another has been found.

[Letter, Dr. Brock to Dr. Chalmers, 6th December.]

On 9th November (last month) I saw the first case of the beginning of the present outbreak. The man took ill at Talla, and was reported to me as "suspicious." I went out at once, and pronounced it "smallpox." Some 45 men, I think, at once left the works. Then two more cases followed, and, as a result, some 65 other workmen left. Three more cases occurred at the end of November, and one died in Talla Hospital, with the result that, after pay, 165 on one single day (2nd December) cleared out.

Although free vaccination was intimated, only six availed themselves of the offer, and the only trace of the men to be got was from either the hut caretaker or their companions who remained behind, and their information has not been of much use. Thus, as an example, one man said, "I am off to Wales."

Many of these men were intercepted at Broughton, but none would give any definite information as to destination.

Now, to deal specially with your letter, you first mention Public Health Act, Section 47 (4) and Section 66 (1).

With regard to Section 47 (4), the Local Authority of Peeblesshire has at least hitherto had no difficulty regarding the clearing out temporarily for purposes of disinfection all inmates, and especially now in the case of the Talla Works, seeing that so many have cleared out, leaving huts vacant, no difficulty in the near future is anticipated; but with regard to Section 66 (1), the Local Authority can enforce reception-houses for contacts, but what is the use of doing so? There is no power under the Act to retain "contacts" therein, and, knowing these navvies as I have known them for many years, no power on earth would prevent them, if put into places of confinement, from breaking out and wandering as they please.

As to Paragraph 15 of Cholera Order, &c., special legislation would be required to include smallpox.

If legislation is had recourse to, nothing short of compulsory re-vaccination will suffice.

(*Fortnight ending 26th December.*)

The cases of smallpox recorded during the present fortnight show a considerable advance on those of the previous one, 115 cases having been registered in place of 46.

They have occurred in all districts, but the special predominance of the Eastern District is again very marked, no fewer than 58 occurring therein.

The remainder are distributed as follows:—South, 25; North, 12; West, 7; Central, 10; North-Western, 2; and South-Suburban, 1.

Special attention may be directed to the circumstances attending the discovery of a group of cases in the Southern District. A visit was paid, on the receipt of an anonymous note, to a house in South Wellington Street, and three cases of smallpox were discovered in a house of three apartments, occupied by nine persons, three being under ten years of age. The body of an elderly man was found lying on the floor, covered with the eruption, and having died apparently a few hours previously. No doctor had been in attendance, and the other inmates were unaware that death had occurred. Two of the inmates removed to the reception-house subsequently sickened, and were transferred to hospital.

Public apathy towards the necessity for overtaking the re-vaccination of those formerly omitted still continues, and the house-to-house visitation in the Eastern District is almost wholly without result, save in the actual presence of disease in particular tenements.

With the opportunities of exposure to infection which the holidays will afford, a further increase in the number of cases is to be expected, and a wider prevalence even than occurred early in 1901 may occur unless the whole attitude of the unprotected population to re-vaccination is rapidly changed. Already it has been found necessary to restrict the admissions to the fever wards at Belvidere, with the view of having them readily available for the overflow from the Smallpox Hospital, which is likely to occur early in the year. Kennedy Street Hospital has again been opened for reception-house purposes, and of the 267 contacts presently under supervision, 168 are accommodated therein.

Here, and I believe elsewhere, experience is demonstrating how expensive to communities our present methods of dealing with smallpox may become. We supervise contacts at no inconsiderable cost, and urge re-vaccination, yet the disease spreads.

The Corporation, with the experience of the 1901-2 outbreak fresh in recollection, recorded its conviction of the importance of national compulsory re-vaccination.

It may be permitted to hope that the recurrence and present distribution of the disease in Scotland will help to promote a wider acceptance of this principle, and the following extract from the French Law on Vaccination (Article 6), this year promulgated, is of special interest:—

"*Anti-smallpox vaccination is obligatory during the first year of life, as also re-vaccination during the course of the eleventh and twenty-first year. The parents and tutors are held personally responsible for the execution of this measure. In accordance with the advice given by the Academy of Medicine and the Consultative Committee of Public Hygiene of France, regulations established by the public administration will decide upon the measures rendered necessary by the application of the present article.*"

Repeated reference is made in these extracts to the action taken by the Committee on Health in the varying circumstances suggested by the several phases which the outbreak presented. As the disease still continues, these need not be dealt with in any greater length here.

Case-Mortality as affected by Age and Vaccination.

The following Table corresponds in classification with Table VI. in the report of the outbreak of 1900-1902. It presents the clinical distinction between cases presenting evidence of vaccination and those not presenting any such evidence, and for purposes of comparison the mortality rates for each class and for both sexes during that outbreak are appended. The lessened mortality in each class is an index of the relatively milder form of the disease at the beginning of the present recurrence.

GLASGOW, 1903.—SMALLPOX.—RETURN OF CASES AND DEATHS AT SEVERAL AGE PERIODS, WITH CASE-MORTALITY AT EACH, AND CONDITION AS TO VACCINATION.

MALES.

AGES.	VACCINATED.			UNVACCINATED.			DOUBTFULLY VACCINATED.		
	Cases.	Deaths	Case-Mortality.	Cases.	Deaths	Case-Mortality.	Cases.	Deaths.	Case-Mortality.
0— 5 years, ...	...	...	...	5	...	...	1	...	...
5—10 „ ...	2	...	...	2	1	...	1	...	...
10—15 „ ...	3	...	...	...	...	...	...	...	...
15—20 „ ...	10	...	...	1	...	...	1	...	...
20—25 „ ...	24	...	...	1	...	...	1	...	...
25—35 „ ...	52	1	1·9	1	1	...	1	...	...
35—45 „ ...	53	5	9·4	1	...	...	3	2	66·6
45—55 „ ...	29	3	10·3	...	...	...	3	1	33·3
55—65 „ ...	2	1	...	...	...	...	1	1	...
65 and upwards,	1	...	...	...	...	...	...	...	...
All Ages, ...	176	10	5·7	11	2	18·2	12	4	33·3

FEMALES.

AGES.	VACCINATED.			UNVACCINATED.			DOUBTFULLY VACCINATED.		
	Cases.	Deaths	Case-Mortality.	Cases.	Deaths.	Case-Mortality.	Cases.	Deaths.	Case-Mortality.
0— 5 years, ...	...	...	..	8	4	50·0	1	...	...
5—10 „ ...	1	...	...	1	...	...	...	...	...
10—15 „ ...	2	...	...	...	...	...	2	1	...
15—20 „ ...	4	...	...	...	...	...	1	...	...
20—25 „ ...	12	...	...	...	...	...	...	...	...
25—35 „ ...	33	...	...	1	...	...	1	...	...
35—45 „ ...	14	1	7·1	...	...	...	1	1	...
45—55 „ ...	7	1	14·3	...	...	...	...	...	...
55—65 „ ...	2	...	...	...	...	...	...	...	...
65 and upwards,	2	...	...	...	...	...	...	...	...
All Ages, ...	77	2	2·6	10	4	40·0	6	2	33·3
All Ages (Both Sexes)— 1900-1902,	...	...	9·1	...	...	51·6	...	...	54·3

The mortality from smallpox for several periods in Glasgow and other towns in England and Scotland is shown in the following Table:—

SMALLPOX.*

	Death-rate per 100,000. 1893-1902.	1903.
Glasgow, ...	**4·7**	**3·0**
Edinburgh, ...	2·7	—
Dundee, ...	0·2	—
Aberdeen, ...	0·3	—
Paisley, ...	0·4	—
Greenock, ...	0·3	3·0
London, ...	4·0	—
Liverpool, ...	2·0	19·0
Manchester, ...	1·0	5·0
Birmingham, ...	5·0	2·0

*See footnote, p. 15.

The attack and death rates in each Ward is given in Table X., which follows:—

TABLE X.

Glasgow, 1903.—Smallpox.

Municipal Wards.	Cases.		Deaths.	
	Number.	Rate per Million.	Number.	Rate per Million.
1. Dalmarnock, ...	40	777	3	59
2. Calton, ...	20	487	...	...
3. Mile-end, ...	38	872	3	69
4. Whitevale, ...	21	602	1	30
5. Dennistoun, ...	4	117	...	...
6. Springburn, ...	3	70	...	...
7. Cowlairs, ...	3	101	...	...
8. Townhead, ...	12	291	1	25
9. Blackfriars, ...	7	294	...	...
10. Exchange, ...	...	...	...	...
11. Blythswood, ...	...	...	...	...
12. Broomielaw, ...	3	316	2	240
13. Anderston, ...	3	98	...	...
14. Sandyford, ...	14	527	2	75
15. Park, ...	...	...	...	...
16. Cowcaddens, ...	7	170	...	...
17. Woodside, ...	8	175	2	44
18. Hutchesontown, ...	20	476	3	72
19. Gorbals, ...	12	321	1	27
20. Kingston, ...	9	254	1	29
21. Govanhill, ...	8	237	...	...
22. Langside, ...	1	33	...	...
23. Pollokshields, ...	...	...	...	...
24. Kelvinside, ...	2	102	...	...
25. Maryhill, ...	...	...	...	...
— Institutions and Harbour, ...	57	...	5	...
CITY, ...	292	373	24	31

VACCINATION.

The following statement shows the number of vaccinations and re-vaccinations performed by the officers of the Department, and otherwise at the cost of the Corporation, during the year 1903:—

	Primary.	Re-vaccinations.
Office and Hospitals, ...	365	145
At Residence, by Staff of Department, ...	3	1,997
In Prisons, ...	8	2,361
Lodging-houses, &c., ...	24	1,504
	400	6,007

Primary Vaccination.

Table XI. has been compiled from the figures contained in the Registrar-General's supplement for 1903, and gives particulars as to the vaccination of all children born in Glasgow during 1902. For comparison the figures for 1901 are introduced.

TABLE XI.

GLASGOW.—PRIMARY VACCINATION FOR 1902—COMPILED FROM REGISTRAR-GENERAL'S SUPPLEMENT TO MONTHLY AND QUARTERLY RETURNS FOR 1903.

Registration Districts.	Successfully Vaccinated.		Vaccination Postponed.		Insusceptible of Vaccination.		Died before Vaccination.		Removed from the District, or otherwise Unaccounted for.		No. of Children Born.
	No.	Per cent.	No.	Per cent.	No.	Per cent.	No.	Per cent.	No.	Per cent.	
Maryhill, ...	1,480	86·8	17	1·0	13	0·8	144	8·4	52	3·0	1,706
Shettleston, ...	...	...	...	...	...	...	...	...	...	...	...
Bridgeton, ...	1,839	84·9	11	0·5	23	1·1	215	9·9	79	3·6	2,167
Camlachie, ...	1,679	85·5	7	0·4	6	0·3	206	10·5	65	3·3	1,963
Dennistoun, ...	2,674	86·9	44	1·4	24	0·8	252	8·2	84	2·7	3,078
Calton, ...	985	79·9	7	0·6	13	1·0	163	13·2	65	5·3	1,233
Blackfriars, ...	934	69·6	14	1·1	14	1·1	270	20·1	109	8·1	1,341
St. Rollox, ...	1,691	84·5	9	0·4	21	1·1	214	10·7	66	3·3	2,001
Blythswood, ...	420	80·0	4	0·8	1	0·2	72	13·7	28	5·3	525
Milton, ...	1,363	82·9	9	0·5	10	0·6	211	12·8	52	3·2	1,645
Kelvin, ...	1,438	87·8	10	0·6	15	0·9	148	9·1	26	1·6	1,637
Anderston, ...	1,124	83·0	11	0·8	13	1·0	177	13·1	29	2·1	1,354
Hutchesontown, ...	2,329	85·4	29	1·0	12	0·4	269	9·9	89	3·3	2,728
Gorbals, ...	1,157	83·8	16	1·2	15	1·0	132	9·6	61	4·4	1,381
Tradeston, ...	620	83·0	6	0·8	17	2·3	76	10·2	28	3·7	747
Kinning Park, ...	388	87·2	2	0·4	3	0·7	35	7·9	17	3·8	445
Plantation, ...	9	90·0	...	...	...	...	...	...	1	10·0	10
Govan, ...	22	75·9	...	...	1	3·4	4	13·8	2	6·9	29
Partick, ...	190	92·2	2	1·0	3	1·5	7	3·4	4	1·9	206
Rutherglen, ...	1	100·0	...	...	...	...	...	...	...	...	1
Cathcart, ...	411	87·8	9	1·9	8	1·7	27	5·8	13	2·8	468
Eastwood, ...	50	87·7	...	...	...	...	4	7·0	3	5·3	57
CITY, ...	20,804	84·2	207	0·8	212	0·9	2,626	10·6	873	3·5	24,722
1901, ...	—	83·0	—	0·8	—	1·7	—	10·9	—	3·6	24,120

DIPHTHERIA.

The cases of diphtheria registered during the year numbered 724, compared with 617 in 1902. The number of deaths registered was 103, compared with 105 in 1902. These figures for 1903 represent an attack-rate of 926 per million living, and a death-rate of 132. Compared with 1902 the attack-rate was greater, but both the mortality and fatality (*i.e.*, the rate of fatal attacks per 1,000 cases) less. The case mortality fell from 17 per cent. in the earlier to 14·3 in the later year.

For several periods the death-rate for diphtheria in Glasgow has been :—

1881-90,	·280	per 1,000 living.
1891-1900,	·231	,,
1900,	·165	,,
1901,	·151	,,
1902,	·135	,,
1903,	·132	,,

Compared with several other towns during the ten years 1893-1902 and 1903, the death-rate per 100,000 is as follows :—

	1893-1902.	1903.
Glasgow,	**19**	**14**
Edinburgh,	20	19
Dundee,	17	11
Aberdeen,	18	8
Paisley,	17	8
Greenock,	20	9
London,	48	16
Liverpool,	23	23
Manchester,	20	24
Birmingham,	26	26

In the following Table (XII.) the attack-rate and morbidity-rate, together with the percentage of cases treated in hospital, are shown, and in Table XV. the continued diminution of the number of deaths attributed to simple croup is shown.

TABLE XII.

Diphtheria and Membranous Croup.

Year.	Cases.			Deaths.			Case-mortality per cent.
	Number.	Rate per Million.	Per Cent. treated in Hospital.	Number.	Rate per Million.	Per Cent. occurring in Hospital.	
1886-90	...	...	...	...	466	...	...
1891	465	822	16·1	131	232	23·7	28·2
1892	575	861	14·1	195	292	15·9	33·9
1893	828	1,228	19·0	246	365	25·6	29·7
1894	967	1,414	26·1	290	424	30·0	30·0
1895	654	944	28·4	137	198	19·0	21·0
1896	601	854	31·6	116	165	30·2	19·3
1897	462	647	32·9	127	178	30·7	27·5
1898	433	592	59·6	113	154	47·8	26·0
1899	465	622	52·3	109	146	31·2	23·5
1900	540	715	59·4	125	165	44·0	23·1
1901	563	739	57·2	115	151	44·4	20·4
1902	617	794	60·1	105	135	61·9	17·0
1903	724	926	71·1	103	132	68·9	14·3

Some consideration is due to the question whether diphtheria is becoming more prevalent in Glasgow within recent years. If reference be made to Table XII., it will be seen that beginning with 1898 there has been a gradual, but constant, increase in the number and proportion of cases registered during recent years. Since 1894, however, there has been—except during 1900-1—a continuous decrease in the death-rate from the disease, and the fatality-rate or percentage of deaths to cases occurring has so decreased that the fatality-rate in 1903 is less than half what it was in 1893. Is the disease becoming more prevalent, and at the same time milder in type? *

On Table XIII. there is shown a series of figures representing the case or attack rate in the several wards, and it may be noted that while the suburban ward rates are all high, Pollokshields, Dennistoun, and Park exceed all the others, and in the order here given. Now, if reference further be made to the column of deaths in this Table, it will be found that while no deaths occurred from the disease in Pollokshields, the death-rate in Dennistoun is exceeded in many other Wards, and the rate for Park Ward is lowest, with one exception. Again, if we take the three wards presenting the highest death-rates—Cowlairs, Cowcaddens, and Dalmarnock—we find that all of them have less than the average attack-rate of the city. It might, of course, be suggested that a low attack-rate and a high death-rate could be explained by a virulent type of disease, but the following figures scarcely bear out this suggestion. They show the number of throat swabs sent in by medical practitioners for bacterial examination in the six wards just named in relation to the population of each, and we find that, while for every 1,000 of the population in Dennistoun, Park, and Pollokshields the swabs equalled from 2·2 to 4·7, in Dalmarnock, Cowlairs, and Cowcaddens the highest rate is less than 1 swab per 1,000.

With the information which bacteriology affords of the number of persons in apparently good health whose throats may become carriers of infection to susceptible children, an extended use of the laboratory for the purpose of their recognition is to be desired.

Glasgow, 1903.—Diphtheria.—Number of Swabs sent in for Bacteriological Examination from certain Wards, with Rate per 1,000 of the Population.

Municipal Wards.	Population.	Number of Swabs sent in.	Rate per 1,000 of Population.
1. Dalmarnock, ...	51,457	18	0·3
7. Cowlairs, ...	29,781	5	0·2
16. Cowcaddens, ...	41,099	23	0·6
5. Dennistoun, ...	34,128	76	2·2
15. Park, ...	25,727	120	4·7
23. Pollokshields, ...	16,984	63	3·7

Ward Mortality.

In the following Table the number of cases occurring in each Ward and the rate per million living is stated, also the number of deaths in 1903, with the death-rate for several periods. The distribution of the disease in the several Wards will best be followed in the columns showing the case-rate per million of the population:—

* It will be borne in mind that the period of decreasing fatality corresponds with an increasing use of anti-toxin.

TABLE XIII.

Glasgow, 1903.—Diphtheria and Membranous Croup.—Number of Cases and Deaths, with corresponding Rate, in each Ward.

Municipal Wards.	Cases.		Deaths.	
	Number.	Rate per Million.	Number.	Rate per Million.
1. Dalmarnock, ...	34	661	8	157
2. Calton, ...	20	487	5	128
3. Mile-end, ...	32	734	6	139
4. Whitevale, ...	27	773	5	148
5. Dennistoun, ...	52	1,524	5	154
6. Springburn, ...	28	651	4	97
7. Cowlairs, ...	24	806	7	235
8. Townhead, ...	36	874	3	75
9. Blackfriars, ...	15	630	2	87
10. Exchange, ...	2	753	...	...
11. Blythswood, ...	3	764	...	...
12. Broomielaw, ...	2	211	1	120
13. Anderston, ...	29	946	3	102
14. Sandyford, ...	24	903	3	113
15. Park,...	34	1,322	2	80
16. Cowcaddens, ...	35	852	9	225
17. Woodside, ...	52	1,139	6	131
18. Hutchesontown, ...	42	1,000	5	119
19. Gorbals, ...	34	911	5	137
20. Kingston, ...	20	565	4	115
21. Govanhill, ...	40	1,184	5	148
22. Langside, ...	34	1,131	4	135
23. Pollokshields, ...	32	1,884	...	...
24. Kelvinside, ...	22	1,123	2	106
25. Maryhill, ...	28	734	6	165
— Institutions and Harbour, ...	23	...	3	...
CITY, ...	724	926	103	132

Age and Sex Distribution.—The following Table shows the age and sex distribution of the cases and the mortality at certain age periods. Every year of early childhood which can be protected from attack adds appreciably to the chances of recovery should the disease ultimately be contracted.

Glasgow, 1903.—Age and Sex Distribution of Diphtheria, Deaths, and Case-mortality per cent.

Age.	Number of Cases.		Number of Deaths.		Case-mortality per cent.	
	M.	F.	M.	F.	M.	F.
0	22	12	11	8	50·0	66·6
1	58	43	16	22	27·6	51·1
2	55	42	7	9	12·7	21·4
3	40	38	5	9	12·5	23·7
4	35	44	3	—	8·6	—
5	63	85	2	8	3·2	9·4
10	17	30	—	—	—	—
15	13	32	1	—	7·7	—
20	10	27	—	—	—	—
25	18	25	—	1	—	4·0
35	1	9	—	—	—	—
45	2	2	—	—	—	—
55	1	—	1	—	—	—
65	—	—	—	—	—	—
All Ages,	335	389	46	57	13·4	14·6

School Influence.—It has frequently been observed that the influence of schools in the dissemination of diphtheria has rarely been observed in Glasgow, but on a comparison of the cases occurring during the school holiday period with those in a corresponding number of weeks before and after shows indications of an increase at school ages such as Sir Shirley F. Murphy has demonstrated for London. The figures for 1903 are shown in the form devised by Dr. Murphy to convey the London results, but are too few in number at the moment to afford a reasonable basis for any conclusion.

Glasgow, 1903.—Cases of Diphtheria and Membranous Croup notified between 4th June and 27th August, arranged to show the Influence of School Holidays on Case-incidence.

Periods.	Number of Cases Notified.						Increase or Decrease.						Total.
	Ages, 0—3.		Ages, 3—13.		Ages, 13 and up.		Ages, 0—3.		Ages, 3—13.		Ages, 13 and up.		
	M.	F.	M.	F.	M.	F.	M.	F.	M.	F.	M.	F.	
1st. {June 4 to July 2,	5	3	2	14	1	4	...	...	...	...	...	...	29
2nd. {July 2 to July 30,	6	6	7	7	4	5	+1	+3	+5	−7	+3	+1	35
							+4		−2		+4		
3rd. {July 30 to Aug. 27,	13	6	10	12	1	7	+7	...	+3	+5	−3	+2	49
	24	15	19	33	6	16	+7		+8		−1		113
	39		52		22								

Seasonal Distribution.—By referring to Table XIV. it will be seen that the attack-rate of the disease falls to its minimum during the month of July.

The seasonal prevalence of the disease is shown by stating the numbers registered monthly and their rate per 100,000 of the population calculated as an annual average :—

TABLE XIV.

Glasgow, 1903. — Diphtheria and Membranous Croup. — Cases Registered and Annual Case-rate per 100,000 Living, for each Month for the Eleven Years 1890-1900, and for 1901, 1902, and 1903.

Month.	Cases Registered.				Annual Case-rate per 100,000.			
	1890-1900.	1901.	1902.	1903.	1890-1900.	1901.	1902.	1903.
January, ...	652	69	40	96	103	107	61	147
February, ...	611	35	45	41	108	60	75	62
March, ...	586	45	53	66	93	70	80	102
April, ...	461	41	44	39	75	65	69	59
May, ...	444	43	42	47	70	66	64	72
June, ...	377	38	34	30	62	61	53	46
July, ...	300	33	50	38	47	51	76	59
August, ...	478	36	38	53	76	56	58	81
September, ...	608	49	50	51	100	78	78	78
October, ...	711	45	76	96	113	70	115	146
November, ...	698	81	68	106	114	129	106	163
December, ...	649	48	77	61	103	74	117	94
Year,	6,575	563	617	724	89	74	79	93

TABLE XV.

Glasgow.—Deaths and Death-rates per Million from Diphtheria and Croup from 1895 to 1903.*

Year.	Deaths.			Death-rate per Million.		
	Diphtheria.	Croup.	Diphtheria and Croup.	Diphtheria.	Croup.	Diphtheria and Croup.
1895	112	73	185	161	105	266
1896	83	54	137	118	76	194
1897	97	48	145	136	67	203
1898	103	29	132	142	40	182
1899	106	17	123	145	23	168
1900	130	19	149	175	25	200
1901	110	13	123	144	17	161
1902	106	21	127	137	27	164
1903	105	13	118	133	17	150

* Registrar-General's Annual Reports.

Diphtheria in Association with Milk Supply.

The occurrence of five cases of diphtheria associated in one milk supply in the City, towards the end of the year (1902), led to enquiries which afforded an illustration of diphtheria occurring among the consumers when it was still possible to recover the organism of the disease from the throat of one of the workers whose illness appears to have amounted to little else than a passing indisposition. The cases in question sickened in the following order:—one on the 24th, three on the 25th, and one on the 28th December. The ages were respectively 4, 4, 6, 16, and 43 years, and it was observed with regard to one patient that she had been confined to the house, and for the most part to bed, for six weeks before the symptoms of diphtheria developed. In each case the patient was in comfortable circumstances and the houses well kept, and there was no history of previous illness in any of them. Each one obtained a morning's milk supply from one dairy, and this dairy obtained all its morning supply from one farm. The total quantity of milk issued through this dairy formed little more than one-third of the total output of the farm from which it was obtained, but no illness could be traced in the other parts of the stream, although it appeared to have been sold without mixture. These circumstances led to a visit being made to the farm in question, when it was found that the family consisted of the farmer, his wife, three children, the grandfather, and employees, consisting of one dairymaid and three farm hands. There were thirty cows giving milk on the farm, and none were infected with udder or teat eruption or tenderness. All the persons examined at this visit were in perfect health, but the farmer himself was not present. He was said to have suffered from influenza some short time previously, while the baby at the same time had a cold. There had been no complaint of sore throat. The farmer presented himself at the Sanitary Office next day, when a swab taken from his throat on culture revealed the bacillus of diphtheria in considerable numbers. Subsequent swabs taken from the other members of the family were negative. As nearly as can be now fixed, the farmer's illness began on 20th December, and at no time were the symptoms of a definite character. During his indisposition he occasionally milked, and it may be that herein lies the explanation of part only of the milk becoming infected. The milk supply was interrupted till the removal of the farmer and the disinfection of the premises.

Duration of the Viability of the Diphtheria Organism in Cloth Fabrics.

With the view of determining this question an enquiry was undertaken by Dr. R. M. Buchanan, whose Report thereon is as follows:—

"Experiment I.

"*2nd June, 1903.*—Three virulent bouillon cultures, 72 hours old, from the same source, but subcultured respectively from ordinary agar, rat agar, and blood serum, were diluted with two parts of water, and allowed to soak into strips of sterilised cotton cloth. The strips were hung across a wire in a glass cylinder, protected at each end by a film of cotton wool. This drying chamber was exposed to the air of the laboratory, and in its position against the wall at the back of the room it was partly exposed to the action of indirect sunlight from the north.

"Cultures made on the 13th day of the exposure failed to reveal any growth of diphtheria bacilli, either in the bouillon used to wash the portion of cloth or in the serum plates inoculated therefrom.

"Experiment II.

"*22nd June, 1903.*—The above experiment was repeated in order that test cultures might be made from day to day to determine more accurately the actual limit of the resistance of the bacillus to drying.

"Two strips of cotton cloth were soaked for five minutes in a 48-hours' broth culture, and hung across a wire in the glass cylinder as before. A portion was cut from each strip for the purpose of the daily examination.

"On the 15th day there was still a considerable growth. On the 16th day only a few colonies appeared, and two guinea-pigs inoculated with a bouillon subculture from this growth were killed in 48 hours. On the 17th day a few colonies and on the 18th one colony only developed.

"The organisms in the last three cultures stained badly. For four days longer the cultures were continued, with negative results.

"Experiment III.

"*16th July, 1903.*—This experiment on the same lines was carried out as a further control. The first culture was made from the drying cloth on the 11th day, and gave a positive result. A similar result was obtained on the 15th day. On the 18th and 20th days only a few colonies developed. No further growth was obtained, the last culture being made on the 26th day.

"The results of the three experiments show that the *Bacillus diphtheriæ* was killed in cotton fabric by drying in the air in from 13 to 21 days, namely, in 13, 19, and 21 days respectively."

ENTERIC FEVER.

944 cases of enteric fever were registered during 1903, of which 871, or 92·2 per cent., were treated in hospital. The number of deaths from this disease in 1903 was 142, representing a death-rate of ·182 per 1,000 living. The case-rate for the year was 1,207 per million living, compared with 899 in 1902. The case-mortality was lower than in any year since 1891. The average annual death-rate for several periods has been as follows:—

1881-90, ...	·230 per 1,000.
1891-1900, ...	·215 ,,
1900, ...	·209 ,,
1901, ...	·275 ,,
1902, ...	·142 ,,
1903, ...	·182 ,,

The following Table gives the attack-rate and death-rate per million and the case-mortality for each year since 1891.

TABLE XVI.

Glasgow.—Enteric Fever, 1891-1903.

Year.	Cases.			Deaths.			Case-mortality per cent.
	Number.	Rate per Million.	Per cent. treated in Hospital.	Number.	Rate per Million.	Per cent. occurring in Hospital.	
1891	784	1,386	59·8	123	218	69·9	15·7
1892	590	884	58·3	101	151	67·3	17·1
1893	703	1,043	60·9	120	178	68·3	17·1
1894	810	1,184	72·2	151	221	76·2	18·6
1895	797	1,150	74·5	122	176	73·0	15·3
1896	691	982	71·1	145	206	72·4	21·0
1897	905	1,265	74·6	174	243	78·8	19·2
1898	1,212	1,657	86·6	228	312	86·0	18·8
1899	1,080	1,445	89·4	178	238	84·3	18·4
1900	1,013	1,340	85·1	158	209	85·4	15·6
1901	1,257	1,650	85·1	210	275	80·1	16·7
1902	698	899	90·7	110	142	88·2	15·8
1903	944	1,207	92·2	142	182	91·5	15·1

For comparison with other towns the following particulars are given:—

Death-rate per 100,000 from Enteric Fever in certain Large Towns of Scotland and England for several Periods.

	1893-1902.	1903.
Glasgow, ...	**22**	**19**
Edinburgh, ...	13	8
Dundee, ...	11	20
Aberdeen, ...	8	2
Leith, ...	10	4
Paisley, ...	34	13
Greenock, ...	19	31
London, ...	15	9
Liverpool, ...	33	23
Manchester, ...	19	17
Birmingham, ...	22	13

The distribution of the disease throughout the several wards may be followed in Table XVII., in which are stated the number of cases registered, and of deaths recorded in each during 1903. It will be observed that in Cowcaddens the disease was relatively most prevalent and the death-rate greatest.

The accompanying Chart shows the attack-rate, death-rate, and rainfall for the years 1891 to 1903.

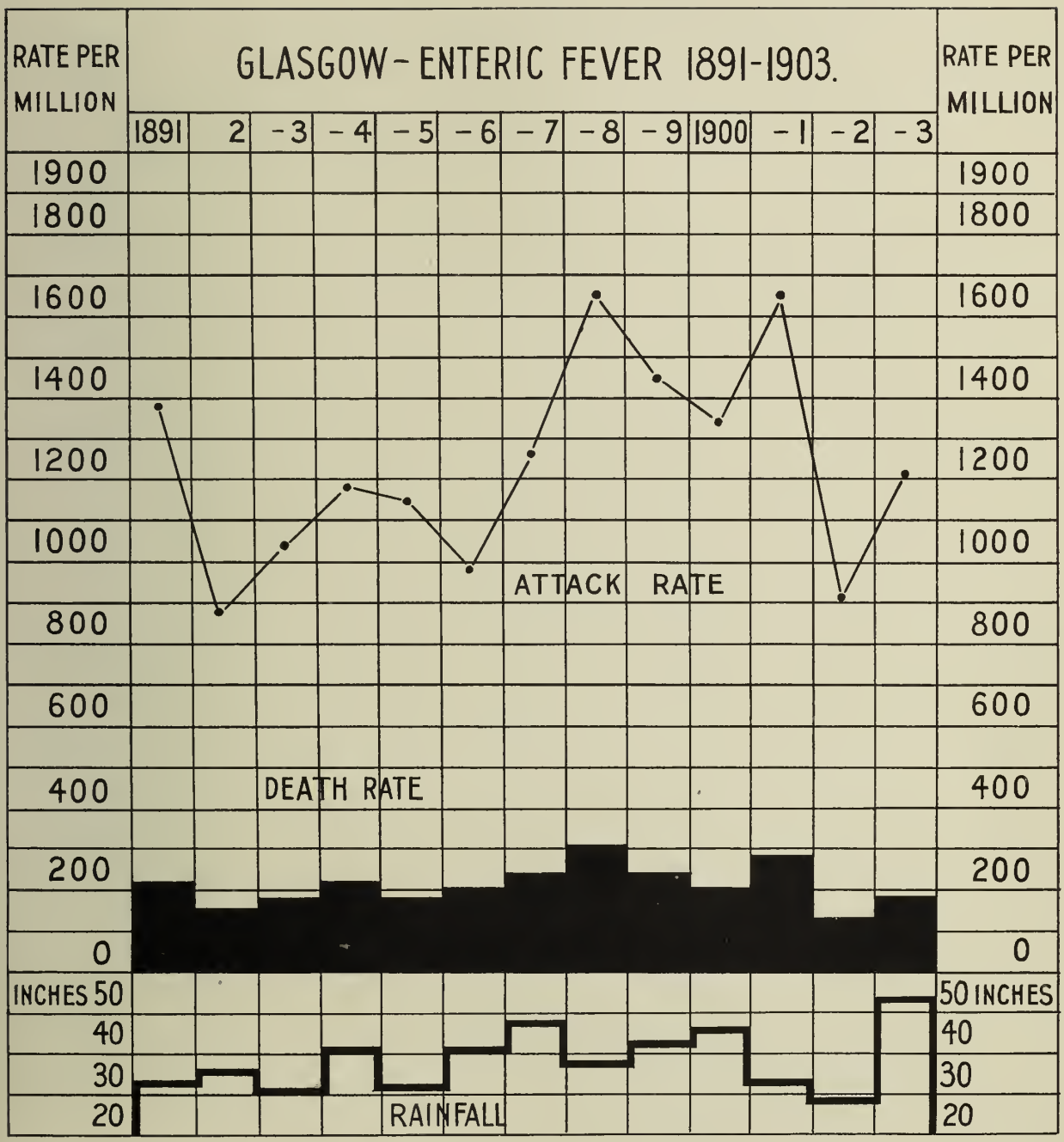

GLASGOW - ENTERIC FEVER 1891-1903.
RATE PER MILLION
1891
2
-3
-4
-5
-6
-7
-8
-9
1900
-1
-2
-3
1900
1800
1600
1400
1200
1000
800
600
400
200
0
ATTACK RATE
DEATH RATE
INCHES 50
40
30
20
RAINFALL

TABLE XVII.

GLASGOW, 1903.—ENTERIC FEVER.

MUNICIPAL WARDS.	CASES.		DEATHS.	
	Number.	Rate per Million.	Number	Rate per Million.
1. Dalmarnock, ...	57	1,108	13	256
2. Calton, ...	56	1,363	11	282
3. Mile-end, ...	71	1,630	17	394
4. Whitevale, ...	52	1,490	10	296
5. Dennistoun, ...	28	821	5	154
6. Springburn, ...	62	1,441	5	121
7. Cowlairs, ...	28	940	4	134
8. Townhead, ...	52	1,262	7	175
9. Blackfriars, ...	39	1,637	6	260
10. Exchange, ...	2	753	1	448
11. Blythswood, ...	1	254	...	...
12. Broomielaw, ...	17	1,793	1	120
13. Anderston, ...	45	1,467	8	271
14. Sandyford, ...	12	451	2	75
15. Park, ...	7	272	2	80
16. Cowcaddens, ...	101	2,458	18	450
17. Woodside, ...	35	767	3	66
18. Hutchesontown, ...	52	1,239	10	238
19. Gorbals, ...	69	1,848	6	164
20. Kingston, ...	49	1,383	3	86
21. Govanhill, ...	19	562	3	89
22. Langside, ...	8	266	2	67
23. Pollokshields, ...	3	177	2	118
24. Kelvinside, ...	6	306	1	53
25. Maryhill, ...	26	682	1	27
— Institutions and Harbour, ...	47	...	1	...
CITY, ...	944	1,207	142	182

In the special report submitted last year on the increased prevalence of enteric fever in recent years, some consideration was given to the influence exercised by rainfall and temperature as affecting the surface conditions which foster the prevalence of the disease. Certain facts were adduced which tended to show that heavy rainfall in the spring months was associated with an increased prevalence of the disease in autumn, subject to the restraining influence which a lower air-temperature in these later months might exercise. The years 1902 and 1903 afford an opportunity of contrasting the effect of rainfall alone. In 1902 the spring months were relatively dry and the summer and autumn cold, and 37 per cent. of the enteric fever cases for the year occurred between July and December.

In 1903 the rainfall in the first quarter of the year was exceptionally heavy, in the second quarter it exceeded the rainfall for the corresponding period of 1902, and 57 per cent. of the cases of enteric fever occurred between July and December.

But while the mean air temperature of the 2nd and 3rd quarters of both years was similar, the temperature of July, 1903, was two degrees above that of July, 1902, and the number of cases occurring in August was much in excess of those occurring in any of the other months.

In the following column the average rainfall for several periods, and the total amount falling in each quarter of the years 1902-3, are given, together with the mean air temperature for the same periods:—

Average Quarterly Rainfall in Inches.

	First.	Second.	Third.	Fourth.	Rainfall.	Per Cent. Cases of Enteric in 3rd and 4th Quarters.
1891-6, ...	7·9	6·1	10·5	11·4	36·1	60
1897-1901,	8·7	10·2	11·4	11·4	41·8	66
1902, ...	6·7	4·8	8·4	9·0	29·0	38
1903, ...	20·4	6·0	13·3	13·6	53·3	57

Average Mean Temperature of Air.

	First.	Second.	Third.	Fourth.
1891-6, ...	39·3	51·5	57·1	42·6
1897-1901, ...	38·7	50·4	57·2	43·6
1902, ...	38·9	48·0	54·2	46·0
1903, ...	44·1	48·8	54·6	42·7

Association of the Disease with Army Blankets.

(*Extract from Report for Fortnight ending 30th May.*)

On 22nd May I received from Dr. Collingridge, Medical Officer of Health of the City of London, intimation that an outbreak of enteric fever had been traced to certain returned army blankets, and that other parcels of the same stock had been consigned to one or two warehouses and institutions in Glasgow, the consignees numbering five in all. One of these was outwith the boundary, and on enquiry at a second it was found that the only consignment had been a sample blanket, which had been returned as unsuitable. The blankets in the remaining consignment numbered 414, and of these we were able to recover 233, of which only four were soiled. The balance had

been disposed of by one of the consignees to several customers in the country. In each of these cases intimation was sent to the Local Authority concerned. When enquiry began to be made we found that a further consignment of 459 had been received in December of last year by another institution, and, although it appeared that none of these had been soiled by the recipients, they were removed for disinfection, as was also a bale of disused blankets, said to have come from South Africa, in the possession of a firm of painters. A week later Dr. Collingridge communicated a further list of consignees, and of the 201 blankets received by them 44 had been returned to the senders, while 108 were recovered here and disinfected. Of those, two have been found soiled.

SHELL-FISH INFECTION.

During the week ending 22nd August several cases of enteric fever were notified in various parts of the City, and on enquiry they were found to have one feature in common, namely, residence at the same coast town during the probable time of infection. Further investigation augmented the number, and the source of infection was rendered more certain by the discovery of similar cases in a neighbouring burgh.

Almost without exception, the patients in question admitted eating shell fish, both in the raw and cooked condition, whilst on holiday, and there was a considerable amount of presumptive evidence in favour of the view that a common source of infection was afforded by sewage-contaminated shell-fish. The circumstances, as described by Dr. Knight at the time on reporting the outbreak to the Local Government Board, were that :—

"On the 17th instant (August), Dr. Rutherford, Springburn, notified two cases of enteric fever, and in doing so stated that they had been residing in Lochgilphead during the Glasgow Fair holidays, and had sickened shortly after their return. He also stated that both patients admitted eating shell-fish whilst there. This led to further investigation, with the result that several other cases were found to have a similar history. Intimation was, therefore, sent to the Medical Officer of Health for Argyllshire.

"Up to the present (24th August) fifteen cases resident in different parts of Glasgow have been discovered, the history in each case being practically the same, viz., they resided in Lochgilphead during the Fair Holidays, and whilst there consumed shell-fish (cockles), mostly in the raw state.

"In the absence of any definite information regarding the milk supply, there appears to me to be presumptive evidence in favour of the view that the infection in these fifteen cases was probably due to the consumption of shell-fish which had been exposed to sewage contamination. This information is strengthened by the statement of the Medical Officer of Health for Partick that within his burgh he has, so far, become aware of five similar cases."

In a further communication, of date 8th September, Dr. Knight wrote :—

"As supplementing my letter of 24th August regarding the above, I beg to enclose a copy of the report which I to-day laid before the Health Committee. Further, I append an additional list of cases which have since been reported.

"From the enclosed report it will be seen that the cases are fairly equally distributed throughout the City, so that any case due to a local focus of the disease is clearly eliminated. Attention is specially drawn to the occurrence of eight cases in one family. The simultaneous notification of seven members of one family at once attracted my attention, and enquiry showed that these also were connected, although indirectly, with Lochgilphead. The details are as follows :—

"Mrs. H., 125 Crookston Street, Glasgow, brought the shell-fish on the 25th July from Lochgilphead to the family C., 259 Crookston Street. The shell-fish were consumed by the family, and on the 10th August Mrs. C. sickened of enteric fever; two children sickened on 22nd, three children and the father on 23rd; the remaining child, admitted to the Reception House, sickened on 2nd September. None of the family had been at Lochgilphead.

"I have forwarded to the Medical Officer of Health of Argyllshire as detailed information as could be obtained regarding the place and conditions at and under which the shell-fish were gathered. The Bacteriologist's examinations are not yet completed, but abundant evidence has been obtained of sewage contamination.

"No further cases have been discovered of late, and the outbreak would appear to have spent itself."

This ended the outbreak, and Dr. Knight has prepared the following summary of the enquiry which he subsequently made by direction of the Local Government Board:—

SHELL-FISH INFECTION.

The annual course of enteric fever is characterised by marked increase in the prevalence of the disease during the autumn season. In 1903, however, the autumnal increase was rendered specially noteworthy by the discovery of a group of cases traceable to a common origin. Nor was this feature of the disease confined to the city, as similar cases arose simultaneously in Govan, Partick, and Kinning Park. So far as could be gathered, this special outbreak was confined to the City and its adjoining burghs.

Enteric fever, as is well known, is chiefly infectious through the intestinal evacuations. Where these gain access to food or water supply, outbreaks of the disease arise suddenly and spread rapidly.

In the great majority of instances, epidemics of enteric fever have been traced to contaminated milk or water. Where milk has formed the vehicle of infection, it has generally been found that the specific germ obtained access to it through the use of excreta-polluted water in the cleansing of the milk vessels.

Of recent years, however, attention has been directed to the spread of enteric fever by other articles of food, and a large body of evidence has been accumulated to show that in many instances the medium of infection has been shell-fish. The shell-fish chiefly involved have been oysters, mussels, and cockles. It would appear to be clearly established that infection from these sources has only occurred where the shell-fish beds, from their situation, had become liable to contamination from sewage.

In most of the watering-places the sewage is disposed of by being led, without any preliminary purification, into the sea. Shell-fish beds in the immediate vicinity run a considerable risk of being polluted by the discharge rom the sewers. The degree of liability to contamination will be dominated entirely by the local conditions, *e.g.*, discharging points of sewers, foreshore, currents, tides. The necessity for regarding as unfit for human consumption any shell-fish gathered on the shore in the neighbourhood of sewers becomes sufficiently apparent.

The Outbreak in Glasgow.

The outbreak in Glasgow of enteric fever cases associated with Lochgilphead amounts in all to twenty-seven notified cases. The patients belong, without exception, to the respectable working class, and are drawn from all districts of the City. This uniform and wide distribution of the cases is sufficient in itself to negative the suspicion of any local focus of infection, and this view is strengthened by a consideration of the other circumstances. There is no milk supply common to the whole or any section of the cases, nor have any sanitary defects been found at the infected tenements. In no case has there been any previous enteric fever or suspicious illness in the patient's household within a period which might justify the view that such earlier illnesses were the cause of the infection in the cases under consideration. Further, with one exception, there has been no previous enteric fever recorded in the infected tenement, and in the exceptional case, the circum-

stances are such as to clearly exclude the previously recorded enteric cases as being the source of infection of the present ones.

Of the twenty-seven cases notified, two have turned out not to be enteric fever, and may therefore be dismissed without further comment.

Seven of the remaining cases are clearly secondary in origin, as is shown by the dates of sickening.

The eighteen primary cases are divisible into two groups:—

(1) Those who were resident at Lochgilphead during a period which includes their probable date of infection—seventeen belong to this class.

(2) One who, not having visited Lochgilphead, consumed shell-fish therefrom, and sickened of enteric fever at a date which rendered it highly probable that the infection took place about the same time as the ingestion of the shell-fish.

A study of the Table reveals the fact that the former class became infected during their stay at Lochgilphead. The interval which elapsed between leaving Lochgilphead and sickening with enteric ranges in the different cases from 2 to 22 days. Whilst bearing in mind the extreme difficulty of exactly ascertaining the date of sickening in a disease of insidious onset like enteric fever, it is to be observed that the maximum interval recorded above is covered by the maximum incubation period of enteric fever. On the other hand, two of the cases sickened before leaving the coast:—

Case 1 sickened on the 7th day of his stay; but although this presumed incubation period is short, it is not unknown in enteric fever.

Case 5 had been resident in Lochgilphead for a time which amply covers the maximum incubation period of enteric fever.

Referring to the same Table, it will be noted that the dates of sickening of the seventeen cases occur within a comparatively short limit of time (24th July to 16th August)—23 days.

These seventeen cases form a distinct group, therefore, despite the fact that they are scattered throughout the various districts of Glasgow; and they have this in common, that they were infected with enteric fever during their stay at Lochgilphead.

So far as enquiries in Glasgow are concerned, these cases are found to have one feature in common. They have all, without exception, consumed cockles in the raw state whilst at Lochgilphead. In some instances, other shell fish are involved, but the only one common to them all is the cockle. Having shown, therefore, that in these cases the infection was obtained at Lochgilphead, and in the absence of information regarding the milk supply, &c., there, which might point to the contrary, it would appear that the vehicle of infection was the cockle eaten in the raw state.

The solitary case which constitutes the second section of the primary cases furnishes confirmatory evidence of this view, almost with the exactness of a carefully devised experiment. This patient, with no other ascertainable source of infection, developed enteric fever sixteen days after having eaten heartily of cockles, raw and boiled, which had been brought up from Lochgilphead. The other members of the family, except the husband, also partook of them, but in much smaller quantities and mostly boiled. The true nature of this first illness was not recognised, and the patient remained at home long enough, before being isolated, to secondarily infect the rest of the family. No doubt had the rest of the family sickened simultaneously with the mother, after the consumption of shell-fish, the evidence in favour of the shell-fish as the source of infection would have been irresistible. Yet this fact of the family sickening practically in a batch, and secondary to the mother, is of extreme interest, and corresponds closely to the information contained in the histories of these other cases, as regards the consumption of shell-fish.

On reference to cases 20, 21, 22, 23, and 24, it would be found that four of them ate but few shell-fish in the raw state, and that case 22 ate none whatever. The hypothesis of shell-fish infection, therefore, so far from being disturbed, is confirmed, whilst the dates of the secondary cases support the view that no other local source of infection than the first case existed.

It has been impossible to ascertain the exact date on which the various cases ate the shell-fish, so that the respective incubation periods could not be determined. Evidence was obtained in a few cases, however, which seemed to point to a relatively short incubation period. This also would agree with the direct ingestion of infected food.

Enquiries were made regarding the symptoms, if any, which followed, more or less immediately, the consumption of the shell-fish.

The last column of the Table shows that ill effects of immediate onset were comparatively rare. One patient suffered from vomiting and two from diarrhœa.

In the course of the enquiry, information was obtained regarding others who, having eaten shell-fish, did not develop enteric fever. Accurate details regarding these could not be got, but enough was learned to indicate that vomiting, diarrhœa, abdominal pain, and other signs of transitory gastro-intestinal disturbance had been comparatively frequent amongst members of this class. It would almost seem as if these owed their immunity to the fact that the gastro-intestinal irritation, which came on so soon after eating the shell-fish, had resulted in getting rid of the *materies morbi*. Whether the vomiting and diarrhœa were due to idiosyncrasy, overloading of the stomach, or, as their severity seemed to indicate in some instances, ptomaine poisoning, the result was obviously the same.

Three cases call for special mention—Nos. 5, 6, and 13—as representing some points of difference from the others. The great majority of the cases resided at Lochgilphead during the Glasgow Fair Holidays, but cases 5 and 13 had been there for a much longer period, and case 6 was only at Lochgilphead Shore on one particular occasion. With regard to the two former, it may be asked how was it that, despite their much longer residence, they only developed enteric fever about the same dates as the others. The key to this question seems to be found in the information obtained regarding their habits. Neither case thought of eating shell-fish until their friends who came to the coast during the Fair Week began to do so.

The family of case 6 lived near Ardrishaig, and the patient was the only member of his family who consumed raw cockles gathered at Lochgilphead when on an afternoon visit there. The remaining members, living under precisely the same conditions, remained perfectly well until secondarily infected by him. In this instance, again, we have practically the conditions of a control experiment. Case 26 visited Lochgilphead on 25th July, but ate no raw shell-fish. She slept with case 13 during a part of her illness, and was obviously infected by her.

It will be noted that the majority of the cases are adults, and this in itself militates against any theory which might be broached regarding infected milk, as milk, particularly in the raw state, enters but little into the dietary of the average adult.

The dates of sickness indicate that the time of infection was practically limited to the Glasgow Fair Holidays, and the few secondary cases which have occurred have only arisen where, owing to the nature of the primary case not having been promptly recognised, no precautions as to isolation and disinfection had been taken.

In several instances the patients were the only members of the family who visited Lochgilphead, and were the only ones who sickened of enteric fever.

TABLE SHOWING GLASGOW CASES.

Name.	Age.	Address.	Lochgilphead Address.	Stay at Lochgilphead.	Date of Sickening.	Interval between leaving Lochgilphead and Sickening.	Shell-Fish Eaten.	Immediate Effects of Eating Shell-Fish.
1. J. B., ...	18	Ardgowan Street, ...	Lochnell Street, ...	17-26 July, ...	24/7/03	—	Cockles raw.	Nil.
2. G. Y., ...	23	Rosebery Street, ...	Poltalloch Street,... ...	18-24 ,, ...	26/7/03	2 days.	Cockles and mussels raw and cooked.	Nil.
3. A. S., ...	32	Hopehill Road, ...	Union Street, ...	17-25 ,, ...	27/7/03	2 ,,	Cockles raw.	Nil.
4. M. S., ...	9	N. Watson Street. ...	,, ,, ...	18-25 ,, ...	30/7/03	5 ,,	Cockles raw, few boiled mussels.	Nil.
5. W. Y., ...	19	Ardenlea Street, ...	Poltalloch Street,... ...	8 weeks, till 1st August.	1/8/03	—	Cockles, chiefly raw.	Nil.
6. J. G., ...	11	Gallowgate, ...	4th Lock, Crinan Canal, Ardrishaig.	13-28 July, ...	1/8/03	4 days.	Cockles raw.	Nil.
7. Mrs. H., ...	30	Main Street, Anderston,	Paterson Street, ...	17-28 ,, ...	1/8/03	4 ,,	Cockles raw.	Nil.
8. J. F., ...	24	Springburn Road, ...	Aucherderroch Lodge, ...	17-27 ,, ...	2/8/03	6 ,,	Cockles raw.	Diarrhœa.
9. J. H., ...	46	,, ,, ...	,, ,, ...	17-27 ,, ...	2/8/03	6 ,,	Cockles raw.	Nil.
10. J. A., ...	27	Crossmyloof Buildings,	Campbell Street, ...	18-25 ,, ...	2/8/03	8 ,,	Cockles raw, few mussels and whelks boiled.	Nil.
11. R. M'I., ...	26	Springburn Road ...	Lochnell Street, ...	18-25 ,, ...	3/8/03	9 ,,	Cockles raw.	Nil.
12. C. T., ...	16	Wesleyan Street, ...	Drill Hall, ...	18-24 ,, ...	6/8/03	13 ,,	Cockles and few mussels raw.	Nil.
13. C. A., ...	9	New City Road, ...	Argyle Street, ...	5 years, left 25th July.	6/8/03	12 ,,	Cockles raw, mussels boiled.	Nil.
14. J. D., ...	24	Dundas Street, ...	Poltalloch Street,...	18-25 July, ...	6/8/03	12 ,,	Cockles raw.	Nausea and Diarrhœa.
15. S. D., ...	17	Struthers Street, ...	Lochnell Street, ...	18-25 ,, ...	9/8/03	15 ,,	Cockles raw and boiled.	Nil.
16. Mrs. S., ...	26	N. Watson Street, ...	Union Street, ...	18-25 ,, ...	10/8/03	16 ,,	Cockles raw, few mussels.	Vomiting.
17. T. S., ...	7	,, ,, ...	,, ,, ...	18-25 ,, ...	16/8/03	22 ,,	Cockles raw.	Nil.
18. J. T., ...	35	Hopehill Road, ...	,, ,, ...	17-25 ,, ...	17/8/03	23 ,,	Few cockles raw.	Returned not Enteric by Hospital.
						Interval after Eating.		
19. Mrs. C., ...	37	Crookston Street, ...	Not at Lochgilphead ; ate Shell-Fish, 25th July.	None.	10/8/03	16 days.	Cockles raw and boiled.	Nil.
20. M. C., ...	10	,, ,, ...	,, ,,	,,	22/8/03	28 ,,	Cockles raw and boiled.	Nil.
21. H. C., ...	5½	,, ,, ...	,, ,,	,,	22/8/03	28 ,,	Cockles raw and boiled.	Nil.
22. J. C., ...	37	,, ,, ...	,, ,,	,,	23/8/03	29 ,,	None.	—
23. J. C., Jun.,...	12	,, ,, ...	,, ,,	,,	23/8/03	29 ,,	Cockles raw and boiled.	Nil.
24. N. C., ...	2½	,, ,, ...	,, ,,	,,	23/8/03	29 ,,	Cockles boiled.	Nil.
25. W. C., ...	4 m.	,, ,, ...	,, ,,	,,	23/8/03	29 ,,	None.	Returned not Enteric by Hospital.
26. M. K., ...	20	New City Road, ...	Visited Lochgilphead on 25th July only.	—	27/8/03	33 ,,	Mussels boiled.	Nil.
27. W. G., ...	16	Gallowgate, ...	4th Lock, Ardrishaig, ...	—	4/9/03	—	None.	—

TYPHUS FEVER.

32 cases of typhus fever were registered in 1903, and 6 deaths occurred. All the cases were treated in hospital. The case-rate was 41 and the death-rate 8 per million living.

The death-rate for the several periods is as follows:—

1881-90,	·040	per 1,000 living.
1891-1900,	·016	,,
1900,	·023	,,
1901,	·013	,,
1902,	·012	,,
1903,	·008	,,

Compared with other large towns, the death-rate in the ten years, 1893 to 1902, and in 1903, per 100,000 living, was as follows:—

	1893-1902.	1903.
Glasgow,	1	1
Edinburgh,	1	—
Dundee,	3	—
Aberdeen,	—	—
Paisley,	1	—
Greenock,	2	—

The following extracts from the Fortnightly Reports presented to the Committee on Health afford illustrations of the conditions under which the cases of typhus occurred. Special attention may be directed to the circumstances under which the headmaster of a public school contracted the disease:—

(Extract from Report for Fortnight ending 7th February.)

Late on the evening of 2nd instant, two children, aged 13 and 9 years respectively, were removed to hospital suffering from fever, undefined, from a single-apartment house in Dale Street, Bridgeton. Next day they were notified from the hospital as typhus fever. When the remaining members of the family were being removed to the reception-house, two other children, 11 and 6 years, were found ill and in bed. On examination, these also were recognised as typhus fever, and removed to hospital. The house is a single apartment, and exhibited at the time of visit signs of direst poverty. It is ticketed for $3\frac{1}{2}$, and occupied by $5\frac{1}{2}$. The house was in a filthy condition generally, as were also the inmates.

During the month of December two cases of typhus fever occurred in a household in London Road, in the persons of an old man and his grandchild, and, although no recognisable association has been traced between these and the present cases, still, the recurrence of the disease in a district where overcrowding exists may be regarded as indicating that a strain of typhus fever infection is present, which in some instances passes for a less formidable disease.

(Extract from Report for Fortnight ending 21st February.)

In last Fortnightly Report I had occasion to refer to the probable existence of typhus fever in Bridgeton district beyond what was then within our knowledge. This impression has since been confirmed. During the present fortnight four cases have been admitted to hospital, two being from the house in Dale Street adjoining that from which four cases were removed last fortnight, while another was the headmaster of Bridgeton Public School, who sickened under circumstances which recall the incidents associated with the progress of typhus fever in the days of its former prevalence. In the present instance the children of the Dale Street household, who sickened towards the end of January, attended this school. It was noted at the time of their removal to hospital that the house was in a very dirty condition, but it has only since been discovered that so filthy were the children in school that they had occasionally to be placed apart during the progress of their lessons. In an association of this

sort the dates of sickening are of some importance. The children sickened, two on the 25th, one on the 26th, and one on 28th January. The three who were at school ceased attending on 28th because of their illness, and the master sickened on 4th February. The almost simultaneous sickening of the children followed an undefined illness of the mother, for which she was admitted to Ruchill Hospital on 9th January, just as she was recovering, but which, in view of subsequent events, should probably be regarded as the source of infection directly in the case of the children, and, through them, of the schoolmaster.

The fourth case is also from Bridgeton district.

(*Extract from Report for Fortnight ending 7th March.*)

In last Fortnightly Report reference was made to the dirty condition in which children from one of the infected households attended Bridgeton Public School, the headmaster of which sickened and subsequently died of typhus fever. Advantage was taken of the circumstance to urge upon the School Board, in a letter to their Clerk, the desirability for more active co-operation between the Board and the Local Authority in dealing with children who attend school in a filthy or verminous condition, and appended is a copy of the correspondence with him.

During the fortnight the following notices have been received from the School Board:—

4 Notices of dirty children.
3 Notices of verminous children.
4 Notices of children suffering from itch or skin disease.
1 Notice of children from dirty house.

(*Correspondence above referred to.*)

[Dr. Chalmers to Clerk of School Board.]

Glasgow, 21st February.

TYPHUS FEVER IN BRIDGETON SCHOOL.

The circumstances attending the fatal illness of the headmaster here suggest the query whether we are presently making the best use of our means of co-operation in dealing with children who attend school in a dirty condition, and presumably come from dirty houses. In the present instance, four children attending Bridgeton School were removed to hospital suffering from typhus fever, and the uninfected children, who were removed to the reception-house, were found to be in a verminous condition. Subsequently, on the headmaster's sickness coming to knowledge, we found that the school children of this household had acquired such a reputation in the school for filthiness that their lessons were, occasionally at least, given them apart from other children.

Since then, in answer to a special request, I have been supplied with a list of over thirty children in this school (in some cases more than one are of the same family) who come to school "dirty."

Some part of the difficulty in the past has been due to the various meanings of the term "dirty." More than half the intimations which are sent to us are of children who suffer from an infectious disease (most commonly itch); the balance are "dirty" in the usual sense. With those children affected with "itch" we can do little, because what is required is usually prolonged medical treatment. But out of this difficulty there has, I fear, arisen a certain degree of indifference to simple dirtiness of clothing, associated sometimes with vermin. For this class, I believe, we may accomplish a good deal, because such children usually come from dirty houses.

I shall be glad, therefore, if you will take advantage of the present occurrence to repeat your former request to headmasters to keep me constantly informed of children who are dirty in this latter sense.

[Clerk of School Board to Dr. Chalmers.]

Glasgow, 26th February.

UNCLEAN CHILDREN.

I have to acknowledge receipt of your letter of the 21st instant relative to the above, and to say that we are again issuing a circular to our headmasters calling their attention specially to the matter of children who attend school in a dirty condition.

(*Extract from Report for Fortnight ending 21st March.*)

On 7th March, J. O., the householder of a dirtily-kept two-apartment house in Landressy Street, was admitted to hospital certified to be suffering from continued fever, but his illness was there recognised as typhus fever. On visiting the house, the patient's wife was found to be also suffering from typhus, and a house-to-house visitation in the tenement resulted in the discovery of another case in the person of a girl, M. D. These cases have an indirect association with those formerly reported in connection with Bridgeton Public School. A previous illness, which began in the first or early in the second week of February, had occurred in the person of a boy belonging to the family O., who was a classmate of the eldest of the Dale Street family, referred to in previous reports; and a younger sister of the girl D, who attended the same class as the three younger children of that family, sickened of an unrecognised febrile condition about the 3rd or 4th of February.

The following notices have been received from the School Board:—

Dirty and verminous children, ...	45
Children from dirty houses, ...	13
Children suffering from itch or skin disease, ...	4
Total, ...	62

(*Extract from Report for Fortnight ending 25th July.*)

After an interval extending from March last, during which no case of typhus fever is known to have occurred in the City, it was intimated from Belvidere that a woman who had been admitted to hospital from South York Street, certified as suffering from enteric fever, was ill of typhus. She was admitted on 15th July, after about twelve days' illness, judging from the clinical appearance presented by the rash, but after nine only according to her mother's statement that she had visited Coatbridge on 6th current, and sickened immediately on her return. The source of infection is unknown. Patient was a school teacher on the South-Side. She died on the morning of the 18th July.

(*Extract from Report for Fortnight ending 22nd August.*)

On the 10th instant four cases of typhus fever were discovered, members of one family, in a house in South Stirling Street. Enquiry showed that in the first week of July another member sickened in a similar way, but the true nature of her illness had passed unnoticed. The cases found on the 10th had evidently been infected from the unrecognised illness.

(*Extract from Report for Fortnight ending 5th September.*)

On the 26th instant attention was called by the Epidemic Inspector to several cases of illness in a back-land house at Centre Street, S.S. When visited, five members of the family were found to be suffering from typhus fever at various stages of the disease. The illness had originated, about the middle of July, in a boy who attended the school referred to in previous reports, and it seems clear that the present family had become infected from this source. The house was one of two apartments and dirty, whilst the family were in poor circumstances. The true nature of the disease had escaped recognition.

The ward distribution of the disease is shown in Table XVIII.

TABLE XVIII.

GLASGOW, 1903.—TYPHUS.

MUNICIPAL WARDS.	CASES.		DEATHS.	
	Number.	Rate per Million.	Number.	Rate per Million.
1. Dalmarnock, ...	6	117	...	...
2. Calton, ...	4	97	2	51
3. Mile-end, ...	2	46	...	...
4. Whitevale, ...	...	...	...	...
5. Dennistoun, ...	...	...	...	...
6. Springburn, ...	1	23	1	24
7. Cowlairs, ...	...	...	...	...
8. Townhead, ...	...	...	...	...
9. Blackfriars, ...	1	42	...	...
10. Exchange, ...	...	...	...	...
11. Blythswood, ...	...	...	...	...
12. Broomielaw, ...	...	...	...	...
13. Anderston, ...	2	65	...	...
14. Sandyford, ...	...	...	...	...
15. Park, ...	...	...	...	...
16. Cowcaddens, ...	...	...	..	...
17. Woodside, ...	...	...	...	...
18. Hutchesontown, ...	1	24	1	24
19. Gorbals, ...	8	215	1	27
20. Kingston, ...	5	141	...	...
21. Govanhill, ...	...	...	...	...
22. Langside, ...	1	33	1	34
23. Pollokshields, ...	...	...	...	...
24. Kelvinside, ...	...	...	...	...
25. Maryhill, ...	...	...	...	...
— Institutions and Harbour, ...	1	...	...	...
CITY, ...	32	41	6	8

SCARLET FEVER.

The number of cases of scarlet fever notified during 1903 was 2,031, of which 1,734, or 85 per cent., were treated in hospital. The deaths in 1903 numbered 82, representing a death-rate of 105 per million living. The case-rate for the City was 2,597 per million living. In both cases the rate is lower than any hitherto recorded.

For several periods the rate has been as follows:—

Average of 10 years,	1881-90,	... ...	·490 per 1,000 living.
„ 10 „	1891-1900,	... ...	·295 „
	1900,	... ...	·278 „
	1901,	... ...	·172 „
	1902,	... ...	·145 „
	1903,	... ...	·105 „

The death-rate per 100,000 from the disease in several large towns for several periods is as follows:—

	Death-rate per 100,000. 1893-1902.	1903.
Glasgow, ...	25	11
Edinburgh, ...	21	16
Dundee, ...	10	4
Aberdeen, ...	18	7
Paisley, ...	22	43
Greenock, ...	28	10
London, ...	17	8
Liverpool, ...	32	27
Manchester, ...	23	17
Birmingham, ...	22	27

The number of cases registered, with the proportion treated in hospital, the proportion of deaths occurring there, and the case-mortality for each year since 1891, are stated in the following Table:—

TABLE XIX.

SCARLET FEVER.

Year.	Cases.			Deaths.			Case-mortality. per Cent.
	Number.	Rate per Million.	Per Cent. Treated in Hospital.	Number.	Rate per Million.	Per Cent. Occurring in Hospital.	
1891	3,045	5,383	62·8	201	355	69·2	6·6
1892	4,844	7,257	62·7	301	451	63·5	6·2
1893	4,027	5,973	70·9	267	396	68·9	6·6
1894	3,930	5,701	73·7	210	307	70·0	5·3
1895	3,502	5,051	75·5	184	265	76·6	5·3
1896	2,728	3,879	78·9	143	203	82·5	5·2
1897	2,955	4,130	75·5	130	182	77·7	4·4
1898	3,620	4,947	82·3	190	260	76·3	5·2
1899	4,728	6,327	83·8	205	274	71·7	4·3
1900	4,162	5,508	85·7	210	278	77·6	5·0
1901	3,317	4,355	84·3	131	172	80·1	3·9
1902	2,509	3,229	85·3	113	145	77·9	4·5
1903	2,031	2,597	85·3	82	105	79·2	4·0

If the figures representing the case-rate in Table XIX. be compared, it will be observed that since 1900 there has been a distinctly lessened incidence of the disease, while the case mortality for 1903 is the second lowest on record.

In Table XX., showing the Ward distribution, it will be seen that Langside had the highest, and Calton the lowest, attack-rate.

TABLE XX.

GLASGOW, 1903.—SCARLET FEVER.

MUNICIPAL WARDS.	CASES.		DEATHS.	
	Number.	Rate per Million.	Number.	Rate per Million.
1. Dalmarnock, ...	77	1,496	3	59
2. Calton, ...	44	1,071	2	51
3. Mile-end, ...	75	1,721	5	116
4. Whitevale, ...	105	3,008	8	237
5. Dennistoun, ...	150	4,395	10	308
6. Springburn, ...	127	2,952	3	73
7. Cowlairs, ...	75	2,518	2	67
8. Townhead, ...	75	1,820	2	50
9. Blackfriars, ...	45	1,889	2	87
10. Exchange, ...	5	1,883	...	...
11. Blythswood, ...	7	1,782	...	...
12. Broomielaw, ...	18	1,899	1	120
13. Anderston, ...	91	2,967	4	136
14. Sandyford, ...	64	2,407	1	38
15. Park, ...	62	2,410	2	80
16. Cowcaddens, ...	72	1,752	...	...
17. Woodside, ...	139	3,045	6	131
18. Hutchesontown, ...	131	3,121	5	119
19. Gorbals, ...	108	2,893	7	192
20. Kingston, ...	59	1,666	3	86
21. Govanhill, ...	142	4,203	10	296
22. Langside, ...	138	4,589	2	67
23. Pollokshields, ...	41	2,414	2	118
24. Kelvinside, ...	46	2,348	...	...
25. Maryhill, ...	101	2,647	2	55
— Institutions and Harbour, ...	34	...	...	...
CITY, ...	2,031	2,597	82	105

Return Cases.—During the year 33 cases of scarlet fever occurred in 26 families subsequent to the return of earlier cases from hospital. This latter figure represents a rate of 2 per cent. on the dismissals for the year. The average residence in hospital of the earlier cases was 59 days, an increase of 3 on last year. The maximum was 91, and the minimum 42 days.

The following shows the distribution of 30 cases throughout the three weeks subsequent to dismissal of the first case, three occurring after this period being omitted from the classification.

Return Cases.—Days Elapsing between Return of Earlier and Sickening of Subsequent Cases.

First Week.		Second Week.		Third Week.	
Days Elapsing.	No. Cases.	Days Elapsing.	No. Cases.	Days Elapsing.	No. Cases.
1	...	8	4	15	...
2	1	9	3	16	...
3	2	10	...	17	1
4	4	11	2	18	...
5	2	12	...	19	...
6	2	13	4	20	1
7	2	14	2	21	...
	13		15		2

Glasgow, 1903.—Scarlet Fever.—Secondary Cases.

First Week.		Second Week.		Third Week.	
Days Elapsing.	No. of Cases.	Days Elapsing.	No. of Cases.	Days Elapsing.	No. of Cases.
1	12	8	2	15	...
2	7	9	2	16	1
3	6	10	3	17	...
4	8	11	1	18	1
5	4	12	...	19	...
6	1	13	...	20	...
7	3	14	...	21	1
	41		8		3

Three cases sickening later than the third week after removal of the preceding case and disinfection are not included here.

MEASLES.

9,161 cases were registered in 1903, as compared with 5,565 in 1902, and 346 deaths occurred, representing a death-rate of ·442 per 1,000 of the estimated population living. 21·1 per cent. of the total deaths occurred in hospital, and 93 per cent. were under 5 years of age.

For several periods the death-rate has been as follows:—

1881-90,	·680	per 1,000 living.
1891-1900,	·784	,,
1900,	·610	,,
1901,	·655	,,
1902,	·342	,,
1903,	·442	,,

The following Table shows the death-rate per 100,000 for several large towns for the ten years 1893-1902, and for 1903:—

	1893-1902.	1903.
Glasgow,	**72**	**45**
Edinburgh,	50	30
Dundee,	52	3
Aberdeen,	55	71
Paisley,	47	35
Greenock,	71	1
Leith,	53	29
London,	55	45
Liverpool,	50	18
Manchester,	75	63
Birmingham,	44	36

The total deaths, the number occurring in hospital, and their proportion to the total deaths, for several years, are as follows:—

TABLE XXI.

MEASLES.

Year.	Deaths.		Death-rate per Million.	Percentage of Total Deaths occurring in Hospital.
	Total Number.	Number occurring in Hospital.		
1895	329	46	475	14·0
1896	819	126	1,164	15·4
1897	586	73	819	12·5
1898	539	89	737	16·5
1899	544	95	828	17·5
1900	461	81	610	17·6
1901	499	89	655	17·8
1902	266	33	342	12·4
1903	346	73	442	21·1

In Table XXII. the number of cases and deaths occurring in each ward for 1903 is stated.

TABLE XXII.

Glasgow, 1903.—Measles.

Municipal Wards.	Deaths.	
	Number.	Rate per Million.
1. Dalmarnock, ...	31	610
2. Calton, ...	32	821
3. Mile-end, ...	34	788
4. Whitevale, ...	18	533
5. Dennistoun, ...	8	246
6. Springburn, ...	20	484
7. Cowlairs, ...	3	101
8. Townhead, ...	25	625
9. Blackfriars, ...	12	520
10. Exchange, ...	...	...
11. Blythswood, ...	1	278
12. Broomielaw, ...	6	720
13. Anderston, ...	3	102
14. Sandyford, ...	8	302
15. Park, ...	2	80
16. Cowcaddens, ...	31	776
17. Woodside, ...	18	394
18. Hutchesontown, ...	20	477
19. Gorbals, ...	20	547
20. Kingston, ...	23	662
21. Govanhill, ...	8	237
22. Langside, ...	2	67
23. Pollokshields, ...	4	235
24. Kelvinside, ...	...	...
25. Maryhill, ...	6	165
— Institutions and Harbour, ...	11	...
CITY, ...	346	442

School Closure.

The following letter was addressed to the Clerk of the Glasgow School Board, and copies forwarded to each of the other Boards having schools within the municipal area. In most cases where it was possible to give effect to the suggestion to extend the period of holiday closure, having due regard to the requirements of the Code, this was arranged. The disinfection and cleansing of the Infant Departments of those in which the disease was extensively present was also arranged :—

Glasgow, 21st December, 1903.

G. W. Alexander, Esq.,
Clerk,
Glasgow School Board.

Dear Sir,

MEASLES.

I herewith beg to confirm the recommendations which I indicated to you in our telephone conversation of 17th current.

(1) Woodlands Institute for Cripple and Infirm Children.

Shortly before the conversation just referred to, Dr. Workman had informed me of the occurrence of five cases of measles among the children attending this school. These children are so liable to suffer from the lung complications which so often follow an attack of measles in delicate children that, in their own interest, it is in the highest degree desirable that the classes should be discontinued for a period of three weeks—a period which will cover the longest interval between exposure to infection and the development of symptoms.

(2) General Closure of Schools.

When measles is so widely prevalent as at present, I have not felt that the recommendation to close the Infant Department of individual schools—selected solely on the ground that the percentage of absentees from this cause was at the moment greater in them than in others—could be urged with any reasonably grounded expectation that it would appreciably affect the volume of cases ultimately occurring in particular districts. Indeed, to obtain a definite advantage from school closure as a preventive measure, distinct from the withdrawal of members of infected families, it seems to me necessary that it should follow the recognition of the first cases of the disease in the Infant Department, and might, in given circumstances, require to include the Infant Departments of schools where the disease had not yet appeared, but at which children were in attendance from districts where it was becoming prevalent.

This, as distinct from the practice of waiting until the attendance has been reduced by 30 or 40 per cent., appears to me to be essential to any effort to control the spread of measles among school children, but it implies so considerable a disturbance of school organisation as to require consideration of the School Board before it is adopted as a policy to guide action in the future.

But, with regard to the present prevalence of the disease, and in view of the seasonal decline which will likely occur next month, I am distinctly of opinion that an extension of the holidays till 11th January (a period of eighteen days) will help to break the sequence of cases which is occurring in so many of the schools, and be to the advantage of the children in attendance.

Yours truly,

(Sgd.) A. K. CHALMERS.

WHOOPING-COUGH.

The deaths from whooping-cough during 1903 numbered 604, which is equal to a death-rate of ·772 per 1,000 living.

The annual death-rate during several periods is shown in the following Table:—

1881-90,	...	1·150 per 1,000 living.
1891-1900,	...	·879 „
1900,	...	·933 „
1901,	...	1·116 „
1902,	...	·600 „
1903,	...	·772 „

In comparison with other large towns, the rate per 100,000 for the ten years 1893-1902 and 1903 was as follows:—

	1893-1902.	1903.
Glasgow,	**92**	**78**
Edinburgh,	51	44
Dundee,	57	30
Aberdeen,	53	25
Paisley,	59	29
Greenock,	57	105
Leith,	60	42
London,	45	35
Liverpool,	53	43
Manchester,	50	39
Birmingham,	50	17

The total deaths, deaths occurring in hospital, and the proportion these form to the total deaths for each year since 1895, are shown in the following (Table XXIII.):—

TABLE XXIII.

WHOOPING-COUGH.

Year.	Deaths.		Death-rate per Million.	Percentage of Deaths occurring in Hospital.
	Total Number.	Number occurring in Hospital.		
1895	614	48	886	7·8
1896	643	68	914	10·6
1897	842	80	1,177	9·5
1898	703	86	961	12·2
1899	323	23	432	7·1
1900	694	67	918	9·7
1901	850	72	1,116	8·5
1902	466	59	600	12·7
1903	604	71	772	11·7

The number of deaths occurring at several age-periods is already stated in Table VI. at page 22.

In the several wards the deaths in 1903 and the death-rates for several periods are given in the following Table:—

TABLE XXIV.

GLASGOW, 1903.—WHOOPING-COUGH.

MUNICIPAL WARDS.	DEATHS.	
	Number.	Death-rate per Million.
1. Dalmarnock, ...	57	1,121
2. Calton, ...	44	1,130
3. Mile-end, ...	48	1,112
4. Whitevale.	23	681
5. Dennistoun, ...	21	646
6. Springburn, ...	21	508
7. Cowlairs, ...	31	1,041
8. Townhead, ...	39	975
9. Blackfriars, ...	14	606
10. Exchange, ...	...	...
11. Blythswood, ...	1	278
12. Broomielaw, ...	11	1,319
13. Anderston, ...	21	713
14. Sandyford, ...	18	680
15. Park, ...	4	160
16. Cowcaddens, ...	63	1,577
17. Woodside, ...	38	832
18. Hutchesontown, ...	38	905
19. Gorbals, ...	22	602
20. Kingston, ...	24	690
21. Govanhill, ...	22	651
22. Langside, ...	9	304
23. Pollokshields, ...	1	59
24. Kelvinside, ...	...	...
25. Maryhill, ...	24	659
— Institutions and Harbour, ...	10	...
CITY, ...	604	772

DIARRHŒAL DISEASES.

The deaths registered as due to diarrhœal diseases in 1903 numbered 652, representing a death-rate of 834 per million living.

For several periods the diarrhœal rate has been—

1881-90, ...	·700 per 1,000 living.
1891-1900, ...	·843 „
1900, ...	·744 „
1901, ...	1·130 „
1902, ...	·642 „
1903, ...	·834 „

In the report for 1900 attention was drawn to the inclusion of several forms of gastro-intestinal catarrh among the diarrhœal diseases—an addition which, to a large extent, will affect the value of decennial comparisons.

On the basis of the Registrar-General's returns, the death-rate of Glasgow may be compared with several other towns:—

	Death-rate per 100,000.* 1893-1902.	1903.
Glasgow, ...	**56**	**37**
Edinburgh.	42	14
Dundee.	85	63
Aberdeen.	49	28
Leith, ...	51	33
Paisley, ...	63	67
Greenock.	77	39
London, ...	80	64
Liverpool.	150	98
Manchester, ...	144	89
Birmingham, ...	133	111

TABLE XXV.

Age-Incidence of Diarrhœal Deaths.

For the year 1903 these may be stated as follows:—

1903.	Under 1 year.	1-5.	5-15.	15-20.	20-25.	25-60.	60 years and upwards.
1st Quarter. ...	42	27	2	...	2	19	9
2nd „ ...	64	18	5	...	...	15	4
3rd „ ...	211	52	4	1	1	11	9
4th „ ...	94	35	6	2	1	9	9
Totals, ...	411	132	17	3	4	54	31

While the relation of mean temperature to the autumnal prevalence of the disease is as follows:—

	1900.		1901.		1902.		1903.	
	Mean Temp. in Shade.	Deaths under 1 year.	Mean Temp. in Shade.	Deaths under 1 year.	Mean Temp. in Shade.	Deaths under 1 year.	Mean Temp. in Shade.	Deaths under 1 year.
	°		°		°		°	
June, - -	56·3	22	54·3	23	53·5	12	54·6	31
July, - -	58·7	46	61·5	89	54·9	26	56·2	41
August, -	56·0	96	57·1	182	54·3	23	54·6	97
September. -	53·1	42	55·4	57	53·5	42	52·8	73

In the annexed Table the death-rate from the disease in each of the Wards is given.

* Compiled from Registrar-General's Annual Summary.

It may be noted that while the mean air temperature in the autumn months of 1903 closely resembled that of 1902, the temperature of July, 1903, was fully one degree above that of 1902, and the number of diarrhœal deaths in August was 97, as compared with 23 in 1902, while in the third quarter of 1903, 211 diarrhœal deaths occurred, compared with 52 in the preceding year.

TABLE XXVI.

Glasgow, 1903.—Diarrhœal Diseases.

Municipal Wards.	Deaths.	
	Number.	Rate per Million.
1. Dalmarnock, ...	82	1,612
2. Calton, ...	65	1,669
3. Mile-end, ...	61	1,413
4. Whitevale, ...	26	770
5. Dennistoun, ...	12	369
6. Springburn, ...	39	943
7. Cowlairs, ...	17	571
8. Townhead, ...	27	675
9. Blackfriars, ...	30	1,299
10. Exchange, ...	1	448
11. Blythswood, ...	2	556
12. Broomielaw, ...	16	1,919
13. Anderston, ...	28	950
14. Sandyford, ...	25	944
15. Park, ...	9	361
16. Cowcaddens, ...	36	901
17. Woodside, ...	23	504
18. Hutchesontown, ...	32	762
19. Gorbals, ...	20	547
20. Kingston, ...	34	978
21. Govanhill, ...	15	444
22. Langside, ...	9	304
23. Pollokshields, ...	3	176
24. Kelvinside, ...	4	212
25. Maryhill, ...	20	550
— Institutions and Harbour, ...	16	...
CITY, ...	652	834

TUBERCULOUS DISEASES.

Phthisis.

In 1903 1,260 deaths were registered as due to phthisis, representing a death-rate of 1·611 per 1,000 living.

For several periods the death-rate has been as follows:—

1881-90,	... ...	2·680 per 1,000 living.
1891-1900,	... ...	2·015 ,,
1900,	... ...	1·876 ,,
1901,	... ...	1·764 ,,
1902,	... ...	1·672 ,,
1903,	... ...	1·611 ,,

In several towns in Scotland the average rate for the ten years 1893-1902 has been—

Phthisis Death-rate per 100,000 in certain Scotch Towns for the Ten Years, 1893-1902, and for 1903.

	1893-1902.	1903.		1893-1902.	1903.
Glasgow, ...	**203**	**170**	Paisley, ...	180	130
Edinburgh, ...	183	152	Greenock, ...	178	167
Dundee, ...	206	170	Leith, ...	186	167
Aberdeen, ...	172	149			

Early in 1903 the Committee had under consideration a memorandum containing a scheme which is outlined in the accompanying Report by the Medical Officer:—

"MEMORANDUM BY MEDICAL OFFICER ON PROPOSED CO-OPERATION BETWEEN PUBLIC DISPENSARIES AND THE SANITARY DEPARTMENT.

"The details in the Memorandum cover—

(a) A system of notification through public dispensaries.

(b) The provision of one or more nurses to supervise, and, in a restricted form, to assist in home nursing.

(c) The provision of spittoons and disinfectants.

"With regard to proposal (*a*) the sub-committee will remember that in 1899 the Committee on Health approved of a suggestion to invite the various public dispensaries to supply the Medical Officer of Health with the names and addresses of patients suffering from consumption, and applying for advice for the first time. A copy of that circular is appended, and its results up till the present time are as follows:—

"Excluding a large number received from the parochial dispensaries which, by reason of the addresses either being unknown or in common lodging-houses, could not be further dealt with, there have been notified from the general dispensaries, until the end of 1902, 689 cases, 169 of whom, or more than 24 per cent., resided beyond Glasgow.

"The suggestion contained in proposal (*b*) is one which I believe can only be made effective if considered as part of a system which would provide hospital isolation for those patients who cannot properly be isolated at home during the later stages of the disease. Even were the question one solely of estimating the number of beds which would be required to be provided for this purpose, there are no reliable data on which the estimate could be based. The annual number of deaths averages about 1,500, and the average duration of the disease is generally stated to be about three years. In our population it may thus be estimated that from 4,000 to 5,000 persons are acutely affected with the disease in one or other of its stages. But the proportion who could not be satisfactorily dealt with save in hospital could only be ascertained by actual survey, and even

the number who could be prevailed upon to go there is doubtful, when the object of removal is kept in view.

"It should, I think, be recognised that, notwithstanding all the general knowledge which prevails regarding consumption, we are, in administrative detail, finding our way very slowly. It is only, I believe, from a more accurate knowledge than we yet possess of the individual consumptive in his home surroundings and at his work that definite advance is to be expected.

"If we add to the numbers already given, of which information is obtained from the dispensaries, those of whom we obtain information through the examination of sputum for purposes of diagnosis, there comes to our knowledge about 1,100* cases, or, approximately, two-thirds of the number added annually. Hitherto administrative dealing with them has only extended to disinfection of rooms and clothing. No systematic enquiry into detail has been undertaken, yet I believe that much information which would afford guidance for future action would arise therefrom.

"I would recommend, therefore, that the committee should appoint a Medical Inspector with suitable qualifications, and of the same standing as the present 'hospital assistant,' to work on the lines indicated, as I am of opinion that the information thus acquired would be productive of advantages easily commensurate with the outlay which it would involve.

(Signed) "A. K. CHALMERS."

Consequent on the foregoing recommendation the services of an assistant were obtained, and his work during the summer reported upon, on the 2nd November, 1903, as follows:—

"In outlining a scheme of future action by the Corporation with the object of making effort to still further reduce the mortality from consumption, we have, in the first place, thought it desirable to shortly review the movement in the mortality of the disease in Glasgow during the past 30 years.

"The first feature that arrests attention here is that, throughout the whole period, the death-rate from the disease has progressively, and almost continuously, declined year by year. This has been true, not of one district of the city only, but of practically all the districts, and is moreover, only a local illustration of the movement in the death-rate throughout the country at large.

"It cannot be said that this decrease has been in any way related to action definitely taken with the object of reducing the prevalence of the disease, or is, indeed, related in any measure to a conviction that the disease could be eradicated. It began before there existed any generally-held conviction that the disease was transmissible from one person to another. It preceded the discovery of the bacillus of tubercle, and the suggestion that it was the causative agent in infection. Moreover, the decrease has been most marked among women, a fact which may have relation to the progress of domestic as distinct from factory sanitation.

"It may therefore be stated, with something of the force of an axiomatic truth, that long before public attention was directed to the possibility of further reducing consumption, there had been forces in operation which were accomplishing that result at a rate which can be stated at 50 per cent. in 40 years.

"The most powerful of those forces has been the displacement of masses of population from areas which were overbuilt, and from houses which were overcrowded; an increase in wages and in the purchasing power of money; and an improvement in the standard of living.

"While all these, and many related causes, have been shown time and again to have tended towards a reduction of the general death-rate, there cannot exist any reasonable doubt that they must be equally credited with the reduction of consumption.

"We do not desire, in the slightest degree, to minimise the danger as regards the spread of the disease which may attend the practice of spitting, which is much too prevalent both in public and private life, and we believe that there are strong *a priori* grounds for regarding the danger as being quite definite, where the practice is indulged

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* Owing to the duplication of specimens from many cases, there is now some ground for thinking that this is over-estimated.

in, in places where the air is likely to be vitiated. In places where people meet in numbers, as in badly-ventilated halls and theatres, or where cleanliness is disregarded, as in badly-lit and badly-kept houses and in badly-ventilated workshops and factories, there is every reason to regard the dust of dried sputum as a frequent carrier of infection.

"And so it is found that one of the outstanding features of the distribution of the disease is that it is most prevalent in those districts which, for other reasons altogether, are to be regarded as insanitary.

"The occurrence of consumption has a definite relation to air surcharged with the impurity of respiration, and, although this has been frequently demonstrated, the following figures illustrate the relationship of the death-rate to the number of persons living per room, irrespective of the size of the house :—

Persons per room.	Death-rate per 100,000.
1.29	159
1.77	172
2.33	235
2.54	255

"The enquiry which has been carried out during the last six months, covering 555 cases of the disease, repeats the information of the distribution of the disease which the earlier enquiry had established.

"It shows that the disease is closely related to other social conditions.

"It prevails in our smaller houses and in our most densely-populated districts. In one and two-apartment houses where 59 per cent. of the population reside, 67 per cent. of the cases occur.

"It further shows that from voluntary notification little help is obtained.

"It has brought to knowledge certain cases in the advanced stages of the disease in need of isolation, but for which presently no means are available.

"Summarising briefly therefore, the indications for further action, our opinion is as follows :—

(1) The results of six months' investigation lead us to say that we cannot recommend the introduction of compulsory notification meantime.

(2) That the most likely method of further reducing the disease is by a continued application of all legislation which will lead to a reduction in the number of insanitary houses, and by a rigorous exercise of Section 91 of the Glasgow Building Regulations Act, 1900, which deals with the ventilation and lighting of dark lobbies and staircases, and of every regulation concerning ventilation and cleanliness in factories and workshops.

(3) With reference to the care of advanced cases, that it be continued in the hands of the sub-committee, with power to confer with the Poor Law and other bodies interested.

"Reported by

"J. CARSWELL.
"A. K. CHALMERS."

In the following Table the Ward rates are given:—

TABLE XXVII.

GLASGOW, 1903.—PHTHISIS.

MUNICIPAL WARDS.	DEATHS.	
	Number.	Rate per Million.
1. Dalmarnock, ...	69	1,357
2. Calton, ...	84	2,156
3. Mile-end, ...	86	1,992
4. Whitevale, ...	63	1,865
5. Dennistoun, ...	32	984
6. Springburn, ...	62	1,499
7. Cowlairs, ...	34	1,141
8. Townhead, ...	54	1,350
9. Blackfriars, ...	53	2,296
10. Exchange, ...	4	1,792
11. Blythswood, ...	8	2,225
12. Broomielaw, ...	22	2,639
13. Anderston, ...	43	1,460
14. Sandyford, ...	28	1,057
15. Park, ...	18	721
16. Cowcaddens, ...	66	1,652
17. Woodside, ...	49	1,073
18. Hutchesontown, ...	72	1,715
19. Gorbals, ...	73	1,998
20. Kingston, ...	70	2,014
21. Govanhill, ...	39	1,154
22. Langside, ...	21	709
23. Pollokshields, ...	6	353
24. Kelvinside, ...	10	530
25. Maryhill, ...	37	1,017
— Institutions and Harbour, ...	157	...
CITY, ...	1,260	1,611

During the year 307 notifications of cases of phthisis were received from hospitals and dispensaries. In 650 cases washing or disinfection was done—the majority after death from the disease.

OTHER FORMS OF TUBERCULOUS DISEASE.

The following Table contains the deaths and death-rates of the several forms of tuberculous diseases taken from the Registrar-General's classification:—

TABLE XXVIII.

GLASGOW.—TUBERCULOUS DISEASES.—DEATHS AND DEATH-RATES PER MILLION FOR THE TEN YEARS, 1894-1903.

YEAR.	DEATHS.					DEATH-RATE PER MILLION.				
	Tubercular Meningitis.	Other Forms of Tuberculosis.	Tuberculous Diseases (Not Phthisis).	Phthisis.	All Tuberculous Diseases.	Tubercular Meningitis.	Other Forms of Tuberculosis.	Other Tuberculous Diseases (Not Phthisis).	Phthisis.	All Tuberculous Diseases.
1894	229	354	583	1,560	2,143	332	515	847	2,271	3,118
1895	229	398	627	1,584	2,211	329	572	901	2,276	3,177
1896	246	327	573	1,342	1,915	349	464	813	1,903	2,716
1897	260	334	594	1,419	2,013	364	467	831	1,985	2,816
1898	254	335	589	1,404	1,993	351	462	813	1,938	2,751
1899	235	401	636	1,444	2,080	320	546	866	1,968	2,834
1900	247	381	628	1,472	2,100	332	512	844	1,979	2,823
1901	237	446	683	1,418	2,101	310	583	893	1,855	2,748
1902	244	403	647	1,329	1,976	315	519	834	1,714	2,548
1903	240	553	793	1,175	1,968	307	707	1,014	1,502	2,516

District Distributions.

The deaths and death-rates in 1903 arising from diseases of the tuberculous class, other than phthisis, are given in the following Table:—

TABLE XXIX.

Glasgow, 1903.—Tuberculous Diseases other than Phthisis.*

Municipal Wards.	Deaths.	
	Number.	Rate per Million.
1. Dalmarnock, ...	75	1,475
2. Calton, ...	60	1,540
3. Mile-end, ...	69	1,598
4. Whitevale, ...	56	1,658
5. Dennistoun, ...	41	1,261
6. Springburn, ...	63	1,523
7. Cowlairs, ...	31	1,041
8. Townhead, ...	57	1,426
9. Blackfriars, ...	28	1,213
10. Exchange, ...	1	448
11. Blythswood, ...	2	556
12. Broomielaw, ...	10	1,199
13. Anderston, ...	42	1,426
14. Sandyford, ...	22	831
15. Park, ...	7	281
16. Cowcaddens, ...	56	1,401
17. Woodside, ...	45	986
18. Hutchesontown, ...	64	1,525
19. Gorbals, ...	32	876
20. Kingston, ...	31	892
21. Govanhill, ...	37	1,095
22. Langside, ...	12	405
23. Pollokshields, ...	9	530
24. Kelvinside, ...	5	265
25. Maryhill, ...	36	989
— Institutions and Harbour, ...	44	...
CITY, ...	935	1,196

* All deaths from meningitis under 5 years are included.

The reduction which has taken place in the phthisis death-rate during the whole period of registration is shown in the following Table:—

DEATH-RATE FROM PHTHISIS IN THE SEVERAL QUINQUENNIA SINCE THE BEGINNING OF REGISTRATION, AND FOR THE THREE YEARS 1900, 1901, AND 1902.

Years.	Death-rate per Million.	Years.	Death-rate per Million.
1855-9, ...	3,742	1880-4, ...	3,140
1860-4, ...	4,094	1885-9, ...	2,601
1865-9, ...	3,972	1890-4, ...	2,315
1870-4, ...	3,908	1895-9, ...	2,014
1875-9, ...	3,644	1900-2, ...	1,761

A similar comparison cannot be made for the tuberculous diseases which are not phthisis, because in 1883 a different classification was adopted; but during the last twenty years it may be shown that, while phthisis, has been reduced 33 per cent., in the other forms, including tubercular meningitis, the reduction has been somewhat less.

GLASGOW.—DEATH-RATES FROM TUBERCULOUS DISEASES, 1883-88 AND 1897-1902.

	Average Annual Death-rate.		Reduction per cent.
	1883-88.	1897-1902.	
Phthisis, ...	2,849	1,907	33
Tubercular Meningitis,	405 } 1,090	332 } 847	18 } 22
Other forms, ...	685 }	515 }	25 }
All Tuberculous Diseases,	3,939	2,753	30

DISEASES OF ORGANS OF RESPIRATION.

3,070 deaths from respiratory diseases, including croup, were registered in 1903, representing a death-rate of 3,927 per million living.

The death-rate per 1,000 living for several periods has been—

1881-90, ...	5·870
1891-1900, ...	4·993
1900, ...	4·979
1901, ...	4·335
1902, ...	4·836
1903, ...	3·927

The deaths for 1903 and the death-rates in each of the Municipal Wards are given in the Table which follows:—

TABLE XXX.

Glasgow, 1903.—Respiratory Diseases (including Croup).

Municipal Wards.	Deaths.	
	Number.	Rate per Million.
1. Dalmarnock, ...	227	4,463
2. Calton, ...	181	4,646
3. Mile-end, ...	191	4,424
4. Whitevale, ...	132	3,907
5. Dennistoun, ...	76	2,338
6. Springburn, ...	173	4,183
7. Cowlairs, ...	96	3,224
8. Townhead, ...	147	3,676
9. Blackfriars, ...	128	5,544
10. Exchange, ...	9	4,032
11. Blythswood, ...	10	2,781
12. Broomielaw, ...	50	5,997
13. Anderston, ...	112	3,803
14. Sandyford, ...	81	3,058
15. Park, ...	61	2,445
16. Cowcaddens, ...	237	5,931
17. Woodside, ...	137	3,001
18. Hutchesontown, ...	214	5,099
19. Gorbals, ...	174	4,762
20. Kingston, ...	130	3,740
21. Govanhill, ...	92	2,723
22. Langside, ...	45	1,519
23. Pollokshields, ...	19	1,119
24. Kelvinside, ...	18	955
25. Maryhill, ...	144	3,958
— Institutions and Harbour, ...	186	...
CITY, ...	3,070	3,927

PUERPERAL FEVER.—ERYSIPELAS.

In the following Table the cases of puerperal fever notified in each year since 1891, together with the case-rate per 1,000 births, and the death-rate from this cause and from erysipelas, are given:—

TABLE XXXI.

Year.	Puerperal Fever.			Erysipelas.
	Cases Notified.	Case-rate per 1,000 Births.	Death-rate per Million Living.	Death-rate per Million Living.
1891	80	4·0	105	115
1892	63	2·8	64	84
1893	73	3·1	68	75
1894	64	2·8	51	83
1895	74	3·2	63	69
1896	105	4·4	79	55
1897	62	2·6	48	49
1898	71	2·9	52	40
1899	83	3·4	82	45
1900	78	3·2	78	32
1901	71	2·9	71	60
1902	90	3·6	51	51
1903	108	4·3	53	44

The death-rates above are based on data obtained from the Registrar-General's Reports.

Uncertified Deaths and Deaths without Medical Attendance.

In Tables XXXII. and XXXIII. the total deaths occurring during the 10 years, 1891-00, and 1901-3, are stated with the number and proportion *uncertified* and *dying without medical attendance* at *all ages* and *under* and *over five years*, together with a comparison of the proportions as affecting legitimate and illegitimate children under 1 and 5 years respectively, and in Table VII. of the Appendix the numbers occurring in each class in the several Wards are given. Appendix Table VIII. gives corresponding information regarding the deaths occurring among members of Friendly Societies.

Certification.—At all ages 2·5 per cent. of the deaths were uncertified and over 1 per cent. had no medical attendance. Under 5 years, however, 3·1 per cent. were uncertified and 2 per cent. had no medical attendance, while the greatest contrast is furnished by deaths occurring under 1 year. Among legitimate children the proportion of these uncertified was 5·4 per cent., while among illegitimate children it was 8·1 per cent. 42 per cent. of the legitimate children dying under 1 year were insured, while among illegitimates the proportion is only 12·7 per cent.

In the subjoined figures a comparison is established between the proportion of deaths uncertified in 1873 and 1903. In the former years 22 per cent. of the deaths at all ages were uncertified, now the proportion is less than 3 per cent. Of

deaths under 5 years 31 per cent. were formerly uncertified, now the proportion is 3·9 per cent.; while of deaths over 5 years the respective proportions are 14·8 and 1·6 per cent.

In 1876 the Friendly Societies' Act was passed, and Sections 14 and 28 regulate the conditions under which claims in respect of deaths are to be paid. Foremost among these is the production of a medical certificate or other satisfactory evidence of the cause of death.

Proportion of Uncertified Deaths to Total Deaths Registered in 1873 and 1903.

	Below 5 Years.		5 Years and Upwards.		All Ages.	
	1873.	1903.	1873.	1903.	1873.	1903.
Total deaths, ...	6,805	5,816	8,071	8,667	14,876	14,483
Not certified, ...	2,106	228	1,199	135	3,305	363
Percentage, ...	30·94	3·9	14·85	1·6	22·21	2·5

TABLE XXXII.

GLASGOW.—CERTIFICATION OF DEATHS.

	10 Years. 1891-1900.	1901.	1902.	1903.
Total Deaths, ...	149,184	15,716	15,054	14,483
Of these Uncertified, ...	4,916	451	412	363
Died without Medical Attendance, ...	2,638	240	217	162
Deaths under 5 years, ...	62,350	6,390	5,364	5,816
Of these Uncertified, ...	3,027	274	244	228
Died without Medical Attendance, ...	1,738	163	138	116
Deaths above 5 years, ...	86,834	9,326	9,690	8,667
Of these Uncertified, ...	1,889	177	168	135
Died without Medical Attendance, ...	900	77	79	46
Percentage of Total Deaths Uncertified, ...	3·3	2·9	2·7	2·5
Percentage of Total Deaths which occurred without Medical Attendance, ...	1·8	1·5	1·4	1·1
Percentage of Deaths under 5 years Uncertified, ...	4·9	4·3	4·5	3·9
Percentage of Deaths under 5 years which occurred without Medical Attendance, ...	2·8	2·6	2·6	2·0
Percentage of Deaths above 5 years Uncertified, ...	2·2	1·9	1·7	1·6
Percentage of Deaths above 5 years which occurred without Medical Attendance, ...	1·0	0·8	0·8	0·5

TABLE XXXIII.

GLASGOW, 1903.—COMPARATIVE CERTIFICATION OF LEGITIMATE AND ILLEGITIMATE CHILDREN.

	10 Years. 1891-1900.	1901.	1902.	1903.
Legitimate Deaths under 1 year, ...	30,304	3,203	2,800	3,116
Of these Uncertified, ...	1,853	193	174	167
Legitimate Deaths, 1—5 years, ...	26,066	2,614	2,063	2,109
Of these Uncertified, ...	476	41	28	23
Illegitimate Deaths under 1 year, ...	4,202	399	368	447
Of these Uncertified, ...	551	34	39	36
Illegitimate Deaths, 1—5 years, ...	1,778	174	133	144
Of these Uncertified, ...	147	6	3	2
Percentage Legitimate Deaths under 1 year Uncertified,	6·1	6·0	6·2	5·4
Percentage Legitimate Deaths, 1—5 years, Uncertified,	1·8	1·6	1·4	1·1
Percentage Illegitimate Deaths under 1 year Uncertified,	13·1	8·5	10·6	8·1
Percentage Illegitimate Deaths, 1—5 years, Uncertified,	8·3	3·4	2·3	1·4

TABLE XXXIV.

GLASGOW.—INSURANCE OF LIVES IN FRIENDLY SOCIETIES, WITH COMPARISON OF INSURANCE OF LEGITIMATE AND ILLEGITIMATE CHILDREN.

	10 Years. 1891-1900.	1901.	1902.	1903.
Total Deaths, ...	149,184	15,716	15,054	14,483
Of these Insured, ...	87,824	9,386	9,001	8,734
Deaths under 5 years, ...	62,350	6,390	5,364	5,816
Of these Insured, ...	33,333	3,405	2,747	2,993
Deaths above 5 years, ...	86,834	9,326	9,690	8,667
Of these Insured, ...	54,491	5,981	6,254	5,741
Legitimate Deaths under 1 year, ...	30,304	3,203	2,800	3,116
Of these Insured, ...	13,052	1,374	1,117	1,309
Illegitimate Deaths under 1 year.	4,202	399	368	447
Of these Insured, ...	434	50	40	57
Legitimate Deaths, 1—5 years, ...	26,066	2,614	2,063	2,109
Of these Insured, ...	19,232	1,931	1,540	1,570
Illegitimate Deaths, 1—5 years, ...	1,778	174	133	144
Of these Insured, ...	615	50	50	57
Percentage of Total Deaths Insured, ...	58·9	59·7	59·8	60·3
Do. Deaths under 5 years Insured, ...	53·5	53·3	51·2	51·5
Do. Deaths above 5 years do., ...	62·8	64·1	64·5	66·2
Do. Legitimate Deaths under 1 year Insured,	43·1	42·9	39·9	42·0
Do. Illegitimate Deaths under 1 year do.,	10·3	12·5	10·9	12·7
Do Legitimate Deaths, 1—5 years, Insured,	73·8	73·9	74·6	74·4
Do. Illegitimate Deaths, 1—5 years, do.,	34·6	28·8	37·6	39·6

METEOROLOGY.

The total rainfall for the year was much above the average; 53·32 inches fell in the twelve months, compared with an average annual fall of 36·1 during 1891-6, 41·8 inches during 1897 to 1901, and 29·05 inches in 1902. In the second quarter of the year the rainfall was 6·04 inches, compared with an average of 10·2 for the years 1897-1901, but 20·42 inches fell in the first three months.

Relation of Number of Days on which Rain fell in each Month of 1903 to Mean of 34 years.

	+	−		+	−
January, -	...	1	July, - -	3	...
February, -	3	...	August, - -	7	...
March, - -	8	...	September, -	...	2
April, - -	...	...	October, - -	10	...
May, - -	...	...	November, -	5	...
June, - -	...	3	December, -	...	4
		+	−		
	Year,	26	...		

Professor Becker writes:—

"In the past year there were 239 days on which rain fell—average, 213; and 241 on which the sun shone—average, 257. Only in one year since 1868 was there a greater rainfall than in the past year, viz., in 1872, when a total of 56·18 inches, or 2·86 more than in 1903, was recorded. The mean temperature was above the average in February, March, May, October, and November."

TABLE XXXV.

ABSTRACT OF METEOROLOGICAL OBSERVATIONS TAKEN AT GLASGOW OBSERVATORY DURING 1903.

Months.	Temperature				Rain.		
	Highest Temperature in Shade.	Lowest Temperature in Shade.	Mean Temperature for Month.	Departure from Average of 34 Years.	No. of Days it fell.	Amount Collected.	Departure from average of 34 Years.
January, ...	51°·7	17°·8	37°·3	−1°·2	19	7·28	+3·63
February, ...	53°·0	33°·0	43°·5	+4°·7	20	6·21	+3·25
March, ...	53°·7	32°·0	41°·5	+1°·3	25	6·93	+4·51
April, ...	55°·8	27°·5	42°·2	−2°·5	15	1·55	−0·42
May, ...	73°·3	34°·2	49°·5	+0°·1	16	2·59	+0·15
June, ...	75°·1	40°·0	54°·6	−0°·5	13	1·90	−0·88
July, ...	71°·6	43°·7	56°·2	−1°·3	21	3·25	+0·15
August, ...	63°·3	43°·7	54°·6	−2°·1	25	5·94	+2·12
September, ...	64°·1	36°·2	52°·8	−0°·2	16	4·08	+0·45
October, ...	60°·9	35°·5	48°·1	+1°·4	29	8·29	+4·63
November, ...	53°·3	26°·5	43°·1	+1°·0	23	2·54	−1·22
December, ...	52°·3	26°·1	37°·0	−0°·8	17	2·76	−1·31
Total, ...	...	...	...	...	239	53·32	...

In each month, save June, August, September, and November, the number of hours of bright sunshine was below the average of 23 years.

RABIES.

During the year the police reported that 194 persons had been bitten by dogs, in eight of which the injury inflicted was classified as "serious," and in 120 as of a trifling character. In November, and again in December, only 3 per cent. of the persons were bitten, while in June these numbered almost 13 per cent., and in July 14 per cent. In each case the condition of the animal was enquired into, and the absence of rabies ascertained.

ANTHRAX.

During the year Principal M'Call intimated the seizure of 4 carcases of cattle dead of anthrax, all of which had been sent to the Cattle Market for food purposes, and advance information in each of these cases reached me through Mr. Trotter, Veterinary Surgeon. When the circumstances seemed to require it, the Medical Officer of Health of the district from which the animal had come was communicated with.

Two cases of the disease in man were also registered. The source of infection in one case was undyed horse hair; in the other, the carcase of an animal which had died from the disease. The recorded history in each case is as follows:—

(*Extract from Report for Fortnight ending 13th June.*)

A further illustration has occurred, through the occurrence of anthrax in one of the employees in a hair factory in the City, of the persistence of the disease among home farm stock.

The patient in question is a young girl engaged as a hair weigher. She sickened on 8th June, the earliest symptoms being itching of the left cheek, on which a blister rapidly formed, which was noticed by the girl herself on the following day to be accompanied by some tenderness behind her jaw. On 10th June she consulted Dr. M'Kail, who recognised the nature of the affection with which he was dealing, and brought the case under notice.

It was patient's duty to weigh several kinds of hair, and since the beginning of the present month she worked almost constantly at black hair, both dyed and undyed. Some of it was of American origin, but this hair was all dyed hair. The rest was obtained from several merchants, both in England and Scotland, and hair dyed and undyed was mixed in varying quantities. The undyed was mainly horse hair, but cow hair was also present.

From the date on which the itching on her cheek began it is reasonably certain that the infection was contracted not earlier than the 4th of the month, and this practically limits the possible source of infection to the undyed hair of home origin. With part of the process at which patient was engaged inhalation of some dust from the bales is almost unavoidable.

(*Extract from Report for Fortnight ending 31st October.*)

A case was admitted to hospital in the course of the fortnight in the person of a man employed in Moore Street Slaughter-house, who sickened on 18th October, and was known to have been engaged in handling a diseased carcase in the slaughter-house on 11th October.

GLANDERS.

Two persons are known to have died of glanders during 1903 under the circumstances detailed in the following extracts from the fortnightly reports to the Committee on Health:—

(*Extract from Report for Fortnight ending 7th March.*)

On 25th ultimo, Dr. Paterson, of Berkeley Terrace, brought under my notice the circumstances attending the death of a man in the Western District, which suggested that he had died from glanders. The correctness of this surmise was ultimately verified by the recovery of the micro-organism which is characteristic of the disease; and, as this is the first death which is known to have occurred in Glasgow since 1892, a recital of the circumstances may help to draw attention to the risk which exists to the attendants of glandered horses.

To Principal M'Call and Dr. Paterson I am indebted for the main facts in the following outline:—

Presence of Glanders in Stable in which Deceased was employed.

Deceased was a coal dealer, and for the purpose of his business rented two stalls in a stable in the Western District of the City, which was tenanted and partly occupied by another contractor.

In this stable cases of glanders were detected on 31st December, 1902; 10th, 17th, 19th, and 31st January, and 2nd and 7th February, 1903. The horses affected on the 19th January and 2nd February belonged to deceased, whose illness began about six days after the latter date. I learn from Dr. Paterson — who was not, however, in attendance on deceased during the first part of his illness — that for the first fifteen days or so the symptoms were indefinitely febrile in character, but that a sudden accession of grave symptoms on 23rd February led to his being asked to see the deceased, whom he found to be suffering from broncho-pneumonia, associated with considerable difficulty in breathing. There was œdema and pain in the right hand, while the right knee and both ankles were affected similarly, but to a less extent. On the 24th his condition had become worse, and a large dark red swelling had appeared on the right side of the face, involving also the eyelids, while a pustule had begun to form over the left eye. The patient by this time was becoming delirious, and on the following day it was observed that the pustules had become more numerous and larger. He died that afternoon.

In considering the mode by which infection may have reached deceased, it will have been noted that the early symptoms were those of a general infection, and that the first local development of appreciable symptoms occurs in the lungs, which suggests inhalation as the method by which the infection was obtained. Farcy-buds, I understand, were present on some of the horses, and deceased was believed to have had some superficial cuts about his fingers; but Dr. Paterson could find no evidence of local sores, save that which was obviously secondary to the general infection. Dr. Buchanan is submitting a Report on the bacteriological investigation.

(*Extract from Report for Fortnight ending 25th July.*)

During the fortnight Dr. Knight investigated a case of glanders in the human subject, which ended fatally on 12th current. The patient's illness was brought to notice by the medical attendant because of the indefinite character of certain symptoms present, and the examination made by Dr. Buchanan ended in the recovery of the bacillus of glanders from some pus obtained from superficial abscesses.

The early symptoms were manifested on 25th June, the patient having three days previously attended a horse sale in Perth. I have communicated with Professor M'Call, but up till the present have been unable to learn whether any animals present at that sale were affected.

HOSPITALS AND RECEPTION-HOUSES.

In December it was again necessary to re-open Kennedy Street Hospital for reception-house purposes, and till the close of the year 252 contacts with smallpox were there dealt with.

In all, 978 were removed to reception-houses during the year, distributed in the following way:—

Glasgow, 1903.—Return of Persons admitted to City Reception-houses.

Diseases.	Kennedy Street.	Weaver Street.	South York Street.
Smallpox.	252	111	488
Typhus.	...	47	41
Enteric Fever, ...	...	4	...
Scarlet ,.	...	...	1
Others, ...	1	17	16
Total, ...	253	179	546

The largest number of contacts under supervision at one time was 365.

Removals by Public Conveyance of Bodies of Persons Dead of Infectious Disease (Glasgow Police (Amendment) Act, 1890, Sec. 11).

Six permits were granted for the removal by rail or steamer of the bodies of persons who had died from infectious disease, and 17 permits for interments in the closed burying-grounds of the City.

Fresh-Air Fortnight.

The lists of the children to be sent to the Fresh-Air Fortnight Homes were, as usual, submitted by the convener of that organisation for inspection, and those children residing in infected tenements were refused for the time being. The homes of all children admitted to Eastpark Cottage Homes for Infirm Children have also been visited and reported on.

DAIRIES, COWSHEDS, AND MILKSHOPS ORDER.

The number of persons registered during 1903, under Section 6 (1) of the above Order, was 84; and the number of cattle kept for the production of milk in byres in Glasgow may be stated at 937, although this is subject to some fluctuation throughout the year.

During the course of the year 19,207 examinations of these cattle were made during 1,388 visits by the Veterinary Surgeon or his staff; and Mr. Trotter has favoured me with the following tabulation of the causes which led to the milk of 56 animals being withdrawn from distribution:—

56 Diseased Cows—The Diseases, Number Affected, and Measures adopted *re* the Animals and Milk.

Disease.		Total Number Affected.	Animals Removed or Destroyed.	Number from which the Milk was Destroyed.
Udder Diseases, -	Tuberculosis, - -	*2	*2	...
	Acute Mastitis, -	5	...	5
	Chronic Mastitis, -	17	1	16
Other Diseases affecting the Milk, - -	Tuberculosis (General),	6	6	...
	Septicæmia, - -	16	1	15
	Gastritis, - -	8	1	7
	Pneumonia, - -	1	1	...
	Rheumatism, -	2	1	1
	Marasmus, - -	1	1	...
Total Number of Animals Removed or Destroyed,		...	12	...
,, ,, Milk Destroyed, -		...	...	44

* Included in the six under "Other Diseases affecting the Milk: Tuberculosis."

Mr. Trotter further states that milk obtained from 13 animals with indurated udders and injected into guinea pigs produced in two cases marked evidence of tuberculosis.

BACTERIOLOGICAL LABORATORY.

During the year 2,943 specimens of morbid products were forwarded by 360 practitioners for bacterial examination from doubtful cases of enteric fever, diphtheria, and pulmonary tuberculosis. Compared with 1902, this is an increase in the number of specimens submitted of 567, and in practitioners availing themselves of the laboratory facilities of 56. The figures represent an overhead ratio of 8·2 specimens for each practitioner so availing himself, as compared with 7·8 in 1902, and less than 5 in 1900.

Dr. Buchanan tabulates the results of these examinations in the following manner, the figures for 1901-2 being introduced for comparison:—

Specimens Submitted by Medical Practitioners for Bacteriological Examination during 1903, with Comparison for Years 1901 and 1902.

	1901.			1902.			1903.		
	Percentage.		Total No.	Percentage.		Total No.	Percentage.		Total No.
	Positive.	Negative.		Positive.	Negative.		Positive.	Negative.	
Widal's Test, -	48·9	51·1	1,076	41·9	58·1	767	46·8	53·1	1,014
Swabs (Throat and Nose),	30·2	69·8	444	35·5	64·5	705	34·8	65·2	997
Sputa, - -	36·2	63·8	602	33·1	66·9	904	32·7	67·3	932
	41·7	58·3	2,122	36·6	63·4	2,376	38·3	61·7	2,943

The number of medical practitioners sending specimens for examination for one or other of the diseases indicated in the above table is as follows:—

	1901.	1902.	1903.
Widal's Test, ...	218	213	220
Swabs (Throat and Nose), ...	140	170	226
Sputa, ...	134	163	214
Total,*	492	546	660

* Many practitioners send specimens of more than one kind, and the actual number using the Laboratory equipment is as follows:—

1901—283. 1902—304. 1903—360.

Examination of Milk for Tuberculosis.

During the year 12 samples of milk, obtained from cows in City byres, were submitted for examination with the view of detecting the organism of tubercle. In 3 samples from separate animals the results were positive; and in 9 samples obtained from separate animals the results were negative.

BACTERIAL IMPURITY IN FRESH MILK.

With the view of obtaining some information regarding the bacterial condition of milk on arrival at the railway stations in Glasgow, and in order to compare this with the changes which take place on its transference to the dairy, and afterwards in its distribution to the consumer, a series of samples were taken in July, and again in August, 1903.

In July, samples of the milk of eight farms were taken on arrival at the railway stations, provision being made that the samples should not be exposed to further bacterial contamination by the vessels used in the sampling. The

milk was again sampled, after an interval of three hours, in the dairies where it was being sold, and again, after another interval of three hours, in the dwelling-houses of consumers; and the changes which occurred during those several hours are stated in D, E, F, G, and H, on Table A, subjoined.

Sufficient indication of the varying degrees of care exercised in the production of milk will be obtained by comparing the figures in the column marked "At Station," where the bacteria are shown to vary in number from 4,000 to nearly 4,000,000 per cubic centimeter.

It must be understood, however, that, although a certain degree of significance attaches to the actual number (chiefly as indicating "age" of milk or careless handling), many of those bacteria are primarily innocuous in character—probably lactic acid bacteria—and suggest where the number is large that the milk arriving in the morning is from the previous evening's milking.

Bearing this in mind, the significance of the rapid increase in numbers at various places, shown by comparing the numbers contained in the dairy and dwelling-house samples with those taken at the station, will be fairly appreciated. It means growth of the normal bacteria of milk, *plus* growth of those added from bacterially unclean utensils.

As an illustration, it will be seen that the best sample here given is that marked H in the following Table, which contains only 4,000 per c.c. on arrival, but increases by ten times after three hours at the dairy, and by 220 times on the elapse of six hours in the dwelling-house.

Sample E, on the other hand, has a sterility, most likely due to the use of a chemical preservative. All the farms here indicated are from districts south of Glasgow.

There remains much to be done in dairy administration before we have reached a condition when milk, which is free from the elements of putrefaction almost from the time of its production, is within the reach of the consumer.

The following is Dr. Buchanan's Table of observations on the bacterial content of milk:—

(1) As it arrives at Railway from the Farm.
(2) At time of distribution from Town Dairy.
(3) After remaining in Dwelling-house for a few hours.
(4) After remaining corresponding periods in Laboratory.

Sample.	Date.	Number of Bacteria per C.C.									
		At Station.		In Dairy.		In Dwelling-house.		Laboratory Control.			
	1903.	A.M.		P.M.		P.M.		P.M.		P.M.	
A	July 22	9.10	3,904,000	...	...	...	...	...	...	...	...
B	„ 22	9.20	420,000	...	...	...	...	...	...	...	...
C	„ 22	9.30	12,000	...	...	...	...	...	...	...	...
D	„ 23	9.20	292,000	12.10	5,160,000	3.55	12,160,000	12.10	1,000,000	3.55	5,620,000
E	„ 23	9.10	No growth.	12.10	No growth.	3.45	No growth.	12.10	No growth.	3.45	No growth.
F	„ 27	9.10	3,504,000	12.30	11,200,000	3.20	13,600,000	12.30	17,840,000	3.20	18,160,000
G	„ 28	8.45	232,000	12.15	4,260,000	3.35	4,560,000	12.15	1,680,000	3.35	3,220,000
H	„ 29	9.45	4,000	12.20	40,000	3.20	880,000	12.20	60,000	3.30	20,000

Bacterial Content of Milk (Second Report) as it arrives at Railway Station from the Farm.

Sample.	Date.	Milk.	Number of Bacteria per C.C.	
			On Agar at 37° C.	On Gelatine at Room Temperature.
	1903.			
A	Aug. 20	Sweet milk.	4,000	9,000
B	,, 21	,,	49,000	59,000
C	,, 24	,,	15,000	119,000
D	,, 26	,,	176,000	85,000
E	,, 27	Cream.	76,000	Too numerous to count.
F	,, 28	Sweet milk.	23,000	5,000

OFFENSIVE TRADES.

Public Health (Scotland) Act, 1897, Section 32.

During the year application was made for sanction to establish the following businesses, and sanction was finally granted:—

Ward III.—Gut and Tripe Cleaner.
Ward IV.—Hide Factor.
Ward IV.—Gut Scraper and Cleaner and Tripe Boiler.

Question of Nuisance arising from Lime-burning.

In July, 1903, the attention of the Local Authority was drawn to "the existence of a nuisance within the meaning of Section 16 (6) of the Public Health (Scotland) Act. 1897, upon the premises of Mr. Robertson, Lime Burner, Chalmers Street, Calton, adjoining the tenement at 48 Anderson Street, which nuisance consists of the trade or business of lime-burning in 3 lime kilns at Mr. Robertson's premises, which is injurious to the health of the neighbourhood, and endangers the health, particularly of the tenants in 48 Anderson Street." The complaint narrated the circumstances under which 3 deaths occurred at the above address three years previously, and further referred to Section 36 of the Public Health Act, 1897, and Section 92 (2) and (3) of the Glasgow Building Regulations Act, 1900, in which the business of lime-burning is described as a noxious business, within the meaning of Part 8 of that Act.

The action of the Local Authority being regarded by the agents of the owners of 48 Anderson Street as unsatisfactory, the Local Government Board were invited to consider the question, and, on 23rd December, 1903, I was asked by them to report on the circumstances. Following on that report the premises were visited by the Medical Inspector of the Board, and on April 14th, 1904, their finding was expressed in the subjoined Minute, and thereafter communicated to the Clerk of the Local Authority.

The Report and Minute which follow are sufficiently explanatory of the conditions which the Local Authority were required to consider.

Report by Medical Officer on Lime Kilns in Chalmers Street, Calton.

In their letter to the Clerk, of 23rd December last, the Board request me to report on the lime kilns at Chalmers Street, Calton, and to state whether, in their present condition, they come within the purview of Section 16 (6) or Section 36 of the Public Health Act.

It will facilitate the description to refer to the plan which accompanies this Report, and which shows the lime kilns as now separated from the tenement in Anderson Street by a space measuring 3 feet in width and extending along the whole breadth of the gable. This space was not present when the fatal accidents occurred in 1899.

I may be permitted to incorporate here a Report to the Committee on Health on "Effluvium Nuisances from Lime Kilns," dated 18th December, 1899, because it expresses the opinion which I still hold—that the danger, and indeed the fatal results which then followed, were not caused by any effluvium nuisance, but resulted from the creation of an accidental channel by which gases, generated in the interior of one of the kilns, gained admission to a particular house. As already mentioned, the free space now shown did not then exist; and the upper part of the narrow interval then separating them was covered in order to protect the foundations from damp.

This Report is as follows:—

"EFFLUVIUM NUISANCE FROM LIME KILNS.

"In the City there are only four firms whose business is wholly or chiefly lime-burning, although in several other industries the process is said to be carried on as incidental to the proper business of the firm. By the four firms referred to the burning is conducted in open kilns, the charge of limestone and fuel being supplied at the top, while the lime is withdrawn from the bottom. In kilns of this construction smoke and the gaseous products of combustion escape into the air at the top; but there is another form of kiln, known as the closed kiln, where these are led into a chimney and distributed at some elevation. The special nuisance attending lime-burning is due to these products, some of which are poisonous when in quantity, although rapidly reduced to innocuous proportions when discharged into freely moving air. Lime-burners do not appear to suffer from their employment, provided they live apart from their work.* The gases are derived both from the limestone and the fuel. Some forms of limestone give off offensive smells, but these chiefly arise from the fuel used, and the slow rate of combustion—smouldering rather than free burning—which goes on in the interior of the kiln. There are other gases present with little or no odour, but lethal when inhaled unless largely diluted. Such are the oxides of carbon; and the House Surgeon in the Royal Infirmary who had charge of the patient from Anderston Street tells me that the symtoms suggested exposure to one of these.

"The concentration of deadly vapours which occurred within this household suggests some means of access quite distinct from the generality of the circumstances contemplated in Sections 16 (6) and 36 of the Public Health Act, under either of which the Health Committee may take action in respect of any business proving injurious to the health of the neighbourhood; but until the Procurator-Fiscal has completed his enquiry, it cannot be held as established that the lime kiln was the source of the poisoning gases, or, assuming this to be the case, that no other more direct mode of access to the house existed than aërial transmission directed by wind currents. In this lies the distinction between an effluvium nuisance—which in this case might be counteracted by the substitution of closed for open kilns and the provision of a chimney stalk—and the occurrence of rapidly fatal results within the limited area of a single house, the walls of which are in contact with those of the kiln.

During a visit to the house in Anderson Street, on the day on which the suffocation occurred, a distinctly metallic taste was imparted by the air of the kitchen, and there was no difficulty in recognising this as being due to sulphur. Its most obvious source was the neighbouring lime kiln, and a surmise was then offered that this gas could only find its way in such volume into the house by some direct, although probably accidental, communication with the interior of the lime kiln. This has, I understand, been partly verified by an examination, which has disclosed a rent in the side of the lime kiln where it abuts on the gable of the house occupied by the deceased.

"Against danger from this direction provision for coping with effluvia would be ineffective, and the possibility of its occurrence should be kept in view whether it is shown to have existed in the present instance or not. The obvious remedy lies in

* It would appear to be the dust rather than the gases which prove injurious.

providing structural separation of kilns from dwelling-houses, but whether the above cited clauses of the Public Health Act could be utilised for this purpose, is a question of legal interpretation.

"The works of the remaining lime-burners are not placed in this dangerous contiguity to dwelling-houses.

(Signed) "A. K. CHALMERS.

"Sanitary Chambers,
"Glasgow, 18th December, 1899."

So far, therefore, as regards any special source of danger arising from the industry in question, I am of opinion that the work is not injurious or dangerous to the health of the workers, or of those now residing near it, and, consequently, that Section 16 (6) of the Public Health Act cannot be made applicable thereto.

It is true that one of the tenants on the top floor complains that in certain directions of the wind the smoke from the kilns prevents her from opening her windows, but I fear that this individual illustration is not sufficient on which to base an opinion; nor does it seem to me to be the particular form of offensiveness which is contemplated under Section 36.

The special circumstances under which the fatal cases of suffocation occurred were made the basis of an application to Parliament for powers to prohibit the erection of lime kilns at a less distance than 50 feet from any dwelling-house or ground belonging to any other person (see Glasgow Building Regulations Act, 1900, Section 92 (2) and (3)), and as the following letters contain an outline of the argument on which this application proceeded, it may be desirable to include them here.

Copy Letter from Dr. Chalmers to John Lindsay, Esq., Interim Police-Clerk, of date 10th January, 1900.

"*Houses Adjoining Lime Kiln.*

"With reference to your letter of yesterday, and our conversation, permit me to refer you to page 205 of the current Minutes, on which you will find a Report which I forwarded you on 18th December on this subject. Special reference is there made to two sections of the Public Health Act—viz, Sections 16 (6) and 36—and you may remember that, at the Meeting at which this Report was submitted, you undertook to consider the question of the legal application of these sections to the circumstances described in the Report. My own impression is that, as I explained to you yesterday, these sections only apply to conditions constituting an effluvium nuisance, and that an arrangement of buildings such as exists in Anderson Street can only be approached by a restriction on proximity of dwelling-houses, such as has been introduced in Clause 98 of the present Building Regulations Bill.

"After you have considered the above two sections in their legal bearing, I shall be glad to hear from you, as further steps will depend thereon."

Copy Letter from John Lindsay, Esq., to Dr. Chalmers, of date 11th January, 1900.

"*Houses Adjoining Lime Kilns.*

"I have your letter of yesterday's date on the above, and have referred to the Minutes you point me to, and have also considered as to the application of Sections 16 (6) and 36 of the Public Health Act to this case.

"I agree with you as to your reading of these sections.

"It seems to me that they do not apply to the case of an arrangement of buildings such as here exists, and which is more effectually provided for by the provisions of Section 98 of the present Regulations Bill.

"J. LINDSAY."

11th January, 1904.

A. K. CHALMERS.

Extract Minute of the Local Government Board for Scotland, dated 14th April, 1904.

Having made enquiry into the subject-matter of a complaint by Messrs. Lamond & Turner, Writers, Glasgow, on behalf of their client, Mr. William Harvie, of No. 8 Bothwell Terrace, Hillhead, Glasgow, regarding a nuisance alleged to be constituted in terms of the Public Health (Scotland) Act, 1897, or the Glasgow Building Regulations Act, 1900, by the carrying on of the business of lime-burning in premises situated at the corner of Chalmers Street and Anderson Street, Glasgow, belonging to Mr. Robertson, of the firm of Messrs. Martin, Barrowman, & Co., the Local Government Board for Scotland find (1) that, although the existence of the said business may be injurious to health and constitute a nuisance *prima facie*, there is no case before them such as to lead to the inference that the business as actually conducted at the present time *de facto* constitutes such a nuisance, or is such as to justify them in holding that the Local Authority of the Burgh of Glasgow have failed or neglected to perform a duty imposed upon them under the Public Health Act; and (2) that any argument which may be raised upon a construction of the provisions of the Glasgow Building Regulations Act, 1900, is outside their jurisdiction. The Board, therefore, determine accordingly.

PROCEEDINGS UNDER THE ACTS DEALING WITH UNINHABITABLE HOUSES.

(E) An account of the house accommodation of the labouring classes in the district, and of any proceedings under the Housing of the Working Classes Act or otherwise.

Glasgow Police (Amendment) Act, 1890.

By the operation of Clause 32 of this Act, 43 houses of one apartment, and 30 houses of two apartments, were closed during the year. Of the former 5, and of the latter 1 were unoccupied at the time of closure. The number of persons displaced was 216; of whom 214 were original tenants and their families, and 2 were lodgers in two-apartment houses. At the end of the year 3 of the one-apartment houses had been rendered habitable, and the closing orders withdrawn. Two of the two-apartment houses had been converted into workshops, 22 of the single apartments and 18 of the two-apartment houses had been demolished, and the remainder were still closed. The situation and details of each are contained in the following table :—

RETURN OF HOUSES CLOSED UNDER SECTION 32 OF THE GLASGOW POLICE (AMENDMENT) ACT, 1890, AND PERSONS DISPLACED, 1903.

Wards.	Address.	Number of Persons Displaced.	One Apartment.	Two Apartments.	Rental.		Remarks.	Condition at 31st December, 1903.
					Monthly.	Weekly.		
1. Dalmarnock, ...	68 Muslin Street, ...	2	1	...	7/ each	...	...	Demolished.
2. Calton, ...	248 Gallowgate, ...	5	...	2	9/2 ,,	...	1 empty	,,
	48 Bell Street, Calton, ...	14	5	1	8/ ,,	5/, sub.	...	,,
	18 Struthers Street, ...	7	2	...	7/ ,,	...	...	,,
	398 Gallowgate, ...	8	3	...	7/ ,,	6/, sub.	...	,,
	4 Green Street, Calton, ...	5	2	...	...	5/, ,,	...	,,
	5 Gibson Street, Calton,	3	...	1	...	(?)	...	,,
	3 Canning Street, ...	4	...	2	8/2 each	...	...	Closed.
3. Mile-end, ...	109 Broad Street, ...	5	2	...	6/ each	..	...	,,
	116 ,, ,, ...	6	2	...	7/3 ,,	...	...	,,
	32 Burgher Street, ...	5	...	2	6/6 ,,	...	...	,,
	37 Dalmarnock Street, ...	3	1	1	8/ ,,	...	single apt. empty	,,
	73 East George Street, ...	4	3	...	6/ ,,	...	1 empty	,,
5. Dennistoun, ...	45 Duke Street, ...	6	1	3	...	5/, sub.	single apt. empty	,,
	55 ,, ,, ...	11	3	...	...	5/, ,,	...	,,
7. Cowlairs, ...	Keppoch Row, ...	64	...	14	9/8 each	...	...	Demolished.
12. Broomielaw, ...	37 West College Street, ...	5	4	...	7/ ,,	...	2 empty	,,
	9 M'Alpine Street, ...	7	...	1	10/ ,,	...	...	Closed.
16. Cowcaddens, ...	10 M'Adam's Lane, ...	7	2	...	9/ ,,	...	...	Closing Order recalled 26/6/03. Re-occupied.
	12 ,, ,, ...	12	4	...	8/ ,,	...	...	Closed.
	26 North Woodside Road,	6	3	...	4/6 to 7/ ,,	...	...	Demolished (September, 1904).
	24 ,, ,, ,,	5	3	...	5/ to 6/ ,,	...	...	,, ,, ,,
	502 Dobbie's Loan, ...	10	...	2	12/ ,,	..	...	Used as a hay and straw store.
18. Hutchesontown,	3 & 5 South Wellington Lane,	8	2	...	8/4 each	...	...	3—Re-opened. 5—Closed.
20. Kingston, ...	27 Centre Street, S.S., ...	4	...	1	12/ each	...	...	Closed.
	TOTAL, ...	216	43	30	...	...	...	

The total number closed under this Act is as follows:—

	Size of House.					Total.
	One Apartment.	Two Apartments.	Three Apartments.	Four Apartments.	House and Shop.	
Houses closed till 31st December, 1902,	534	233	10	2	8	787
Closed in 1903, ...	43	30	...	...	...	73
Totals, ...	577	263	10	2	8	860

The mode of occupancy, average rental paid per occupant, and average cubic space per house closed in 1903 may be summarised as follows:—

	Original Tenants.		Lodgers.	
	One Apartment.	Two Apartments.	One Apartment.	Two Apartments.
Number of persons displaced, ...	66	148	...	2
Average rental per week, ...	1/7¾	2/1¼	...	...
Average number occupying, ...	2·7	3·7	...	...
Average cubic space (in feet) per house, ...	1,082	1,726	...	...

The low average cubic space per apartment, especially in the two-apartment houses, is accounted for by the inclusion of many ranging from 700 to 900 cubic feet.

HOUSING OF THE WORKING CLASSES ACT, 1890.—PART II.

The proceedings regarding 9 Carrick Street and 14 M'Alpine Street, which were still pending at the close of 1902, were terminated during 1903, and the buildings removed.

The number of houses represented under this part of the Act in 1902 as insanitary, and subsequently demolished, and the number of persons displaced, is as follows:—

Ward.	Address.	Houses Affected (all 2 Apartments).	Persons Displaced
12. Broomielaw,	20 Carrick Street,	14	53
	9 Carrick Street,	16	63
	14 M'Alpine Street,	16	69
		46	185

During 1903, representations under Section 30 of the Act were submitted to the Local Authority affecting tenements in Wards II., III., V., VIII., and XII. (Brownfield Sanitary District), XVI. (Cowcaddens Sanitary District), and XIX., making a total of 31 representations, and including 187 houses of one apartment; 176 houses of two apartments; 7 houses of three apartments; and 3 houses of four apartments—in which 1,103 persons were housed.

The location of the several tenements included in these representations, together with the number and size of the houses in each, and the persons residing therein, are stated in the following Table:—

Ward.	Date of Representation.	Address.	Houses.				Persons affected.
			1 Apt.	2 Apts.	3 Apts.	4 Apts.	
	1903.						
II.	January 12th,	*76½ Kirk Street, Calton,	5	12	2	1	43
,,	Do.,	9-11 Gibson Street,	6	3	—	—	26
,,	November 2nd,	106-114 King Street, Calton,	2	2	1	—	11
,,	December 28th,	398 Gallowgate,	4	—	—	—	11
,,	Do.,	3 Canning Street,	3	2	1	—	13
,,	Do.,	18 Clyde Street, Calton,	9	18	—	—	11
			29	37	4	1	115
III.	February 9th,	*64-70 Charles Street,	39	—	—	—	90
,,	November 16th,	187-199 Westmuir Street,	8	1	—	—	30
,,	December 28th,	8 Soho Street,	—	6	—	1	32
			47	7	—	1	152
V.	November 30th,	121 Drygate,	2	10	—	—	36
VIII.		7 Monkland Street,	2	—	—	—	7
,,		151 Castle Street,	5	3	1	—	30
			7	3	1	—	37
XII.	March 23rd,	*29 Brown Street,	—	16	—	—	81
,,	Do.,	34 Carrick Street,	—	16	—	—	70
,,	Do.,	15 Do.,	8	4	—	—	56
,,	November 2nd,	67 Brown Street,	2	7	1	—	34
,,	Do.,	75 Do.,	—	8	—	—	36
,,	Do.,	56 Carrick Street,	10	—	—	—	27
,,	November 16th,	63 Do.,	—	12	—	1	38
,,	Do.,	69 Do.,	2	4	—	—	23
,,	Do.,	56 M'Alpine Street,	6	5	1	—	42
,,	Do.,	66 Do.,	4	7	—	—	33
,,	November 30th,	53 Do.,	4	2	—	—	15
			36	81	2	1	455
XVI.	March 23rd,	*81 Stirling Street,	4	—	—	—	7
,,	Do.,	*64 Muse Lane,	4	—	—	—	—
,,	Do.,	*8 M'Adam's Lane,	10	—	—	—	36
,,	November 2nd,	101 Maitland Street,	9	10	—	—	63
,,	November 16th,	47 Stirling Street, / 42 Muse Lane,	10	9	—	—	52
,,	Do.,	27 Maitland Lane,	4	—	—	—	6
,,	November 30th,	468 Water Street, / 538-546 Dobbie's Loan,	24	18	—	—	120
			57	37	—	—	284
XIX.	November 30th,	176 Main Street,	9	1	—	—	24
		Totals,	187	176	7	3	1,103

* Denotes those tenements the proceedings regarding which had terminated at the end of 1903. See next Table.

The death-rates obtaining in these tenements may be illustrated by the following examples:—

	Death-rate per 1,000.
67-75 Brown Street (average of 4 years), ...	42·2
63-69 Carrick Street do., ...	40·7
56-66 M'Alpine Street do., ...	38·2

In the following cases the proceedings had terminated at the close of 1903, and the tenements were either removed or in course of removal:—

Address.	Houses.				Persons Displaced.
	1 Apartment.	2 Apartments.	3 Apartments.	4 Apartments.	
76½ Kirk Street, ...	5	12	2	1	43
64-70 Charles Street, ...	39	—	—	—	90
29 Brown Street (back), ...	—	16	—	—	81
81 Stirling Street, ...	4	—	—	—	10
64 Muse Lane, ...	4	—	—	—	12
8 M'Adam's Lane, ...	10	—	—	—	36
Totals, ...	62	28	2	1	272
No. empty, included in above,	7	4	—	—	—

Re-housing of Displaced Tenants.

An endeavour was made, wherever possible, to follow the displaced tenants, and the result may be stated in the following manner. Of the 93 houses demolished, as shown in the above table, 7 of one apartment and 4 of two apartments were empty at the time of representation. In 16 of the 82 remaining (all two-apartment houses), the owner displaced the tenants (81 in number) before communicating his intention to do so, and of the remaining 66 families, representing 191 persons, 24 declined to give any information as to where they intended going. This left 42 families who communicated their future addresses, but in 11 instances nothing was known of them at the new addresses given. The results, therefore, have reference only to the after history of 31 families, but even with regard to several of these, it was found that no prolonged stay was made at the new address given, and that, in the course of a few weeks, they had again removed.* Of these 31 families 26 were resident in one-apartment houses, 3 in two-apartment houses, 1 each in houses of three and four apartments, before the displacement, while after displacement 22 occupied one-apartment houses, 6 occupied two-apartment houses, 1 a three-apartment house, and the occupier of the four-apartment house, the only one keeping lodgers, gave up the custom and took a two-apartment house. In the old houses the average rent of one apartment was 6s. 11d. monthly, as against 9s. 1½d. in the new; the old two-apartment rent was 10s. monthly, against 11s. 2½d. in the new; increases respectively of 30 and 12 per cent.

* The migratory character of many of the tenants of houses closed as insanitary is illustrated by the relatively short duration of their occupancy at the time of representation. Of 31 tenants in M'Adam's Lane and Charles Street, from whom information could be obtained, 11 had been less than 3 months resident, 12 less than 6 months, 4 less than 9 months, 2 less than 12 months, 1 had just completed 1 year, and 1 had been over 3 years.

The high percentage increase in the one-apartment rents is explained by the low rent charged in 13 of the old houses. In 5 the monthly rent of these was 5s., in 4 it was 5s. 6d., in 3 it was 6s., and in 1, 6s. 4d.

On the other hand, in the Bridgeton tenement alone the average rent of the one-apartment old houses was 7s. 6¼d., and that of the new houses 8s. 4¾d., or an increase of 12 per cent. only.

These details are summarised in the following Table as a statement of the accommodation of "Families":—

Result of Displacement in Size of House and in Rental.

	Old Address.				New Address.			
	1	2	3	4	1	2	3	4
Kirk Street, - - -	4	3	1	1	5	3	1	...
Charles Street, - -	14*	...	...	...	9	3	...	...
Stirling Street and Muse Lane, - - - - -	5	...	...	...	5	...	...	...
M'Adam's Lane, - -	3	...	...	...	3	...	...	...
	26	3	1	1	22	6	1	...
Average rental (monthly),	6/11	10/-	11/-	12/-	9/1½	11/2½	17/-	...

* In one case the husband went to a model and the wife to lodgings. In another, the tenant, an old woman, went to live with her son.

Occupation of Displaced Tenants.

These may be classified as under:—

	No.	Dependents.
1. Labourers (all classes) males, ...	13	41
2. Factory workers and others of similar grade (females), ...	4	9
3. Hawkers and itinerant merchants, ...	2	1
4. Tradesmen and skilled labourers, ...	2	6
5. Miscellaneous—ice cream, porter, &c., ...	7	12
6. No occupation (idle), ...	3	3
	31	72

Relation to School and Work.

In many cases the displaced tenants found houses in the front tenements at their respective addresses. In general, they found accommodation at no great distance from their old houses, and quite as convenient both to work and school.

Complaint to Medical Officer of Health under Section 5 (2) of the Housing of the Working Classes Act, 1890.

At the close of the year a Complaint was made to the Medical Officer under the above section of the Act, and was dealt with in a subsequent Representation by him to the Local Authority, as provided in the Act.

The Complaint by the "persons liable to be rated to the local rate" was as follows:—

"Glasgow, 30th December, 1903.

"A. K. Chalmers, Esq., M.D., D.P.H.,
"Medical Officer of Health,
"Sanitary Chambers.

"Sir,

"We, the undersigned, being twelve persons liable to be rated to the local rate in your district, and empowered, in virtue of the Housing of the Working Classes Act, 1890, Section 5, Sub-section 2, to make the following complaint, do hereby complain to you of the unhealthiness of the area bounded by Argyle Street on the north, by the Broomielaw on the south, by James Watt Street on the east, and by Washington Street on the west, in respect that the closeness and bad arrangement of the buildings, and consequent want of light, air, and ventilation in said area, have rendered said area dangerous and injurious to the inhabitants.

"Your obedient Servants,"

(Fourteen Signatories.)

"HOUSING OF THE WORKING CLASSES ACT, 1890. PART I

"Representation to the Local Authority by the Medical Officer of Health of the City and Royal Burgh of Glasgow, on Complaint made to him under Section 5 (2), Part I., by Twelve or more Persons qualified to make complaint under said Section.

"On 30th December, 1903, there was forwarded to me a complaint, under the Housing of the Working Classes Act, Section 5, Sub-section 2, which was signed by fourteen persons said to be 'liable to be rated to the local rate,' stating that the area bounded by Argyle Street on the north, by the Broomielaw on the south, by James Watt Street on the east, and Washington Street on the west, is unhealthy, 'in respect that the closeness and bad arrangement of the buildings, and consequent want of light, air, and ventilation in said area,' renders it 'dangerous and injurious to the inhabitants.'

"It must, I think, usually occur that when any body of ratepayers avail themselves of the opportunity provided in the above-quoted section, their object will be to direct the attention of the Local Authority to conditions affecting prejudicially the health of some part of the area within their jurisdiction, and for the removal of which no remedial action is being taken, either by reason of remissness on the part of the Local Authority in the exercise of the powers which the Legislature has provided or because the existence of conditions demanding interference is outwith their knowledge.

"To the circumstances amidst which the present complaint has arisen neither explanation is applicable, because the Local Authority is not only aware of the conditions prejudicial to health which exist, but is actively engaged in taking steps for their removal. And, indeed, the complainers or their agents explain that it is because they differ in opinion as to how this removal should be accomplished that they have raised the question in its present form. (See correspondence appended.*) A narrative of the steps which the Local Authority have taken is, in consequence, necessary.

"It is already within the knowledge of the Local Authority that during the past two years I have represented, under Section 30 of the foregoing Act, forty-eight dwelling-houses (as defined therein), on the ground that they were unfit for human habitation.

"These have been selected from several districts of the City, and fourteen of them are situated within the district defined by the complainers. In several of these cases it became necessary to institute proceedings in Court to obtain a Closing Order, and in defence it has been repeatedly urged by the owners that action should have been taken under another section of the Act (Section 38), which assumed that the houses were fit for habitation.

"The present complaint was forwarded to me under cover of a letter from the law agents for the owners of one of the 'dwelling-houses' in which this objection was urged, and among the fourteen signatories I find that four at least are entered as

* Not here included.

factors or owners of seven of the other dwelling-houses situated within the area defined in the complaint.

"It is difficult, therefore, and for the purpose of the present complaint it is unnecessary, to attempt to dissociate the complaint from the antecedent conditions just described. But the narrative makes it apparent that complainers and Local Authority alike are at one as to the existence of conditions prejudicial to health, while, in so far as the complainers are also defenders in the several actions indicated, the difference is solely one as to the method by which these conditions should be removed.

"The duty of the Medical Officer on receipt of a complaint of this nature is prescribed in the sub-section already quoted. It provides that he shall forthwith inspect such area, and 'make an official representation stating the facts of the case, and whether in his opinion the said area, or any part thereof, is an unhealthy area or is not an unhealthy area.'

"The Local Authority will recognise that the area described in the complaint includes—

"(*a*) The sanitary district formerly known as Brownfield; and

"(*b*) A portion of the districts adjacent thereto on the east and west.

"Regarding these latter it may be observed that the west side of James Watt Street (save two tenements at the foot of the street) is occupied by warehouses and offices, or other business premises, and that the east side of Washington Street is similarly occupied throughout a considerable part of its length. On the other hand, on the east side of Brown Street, and again on the west side of M'Alpine Street, there are individual back 'dwelling-houses' which are also engaging the attention of the Local Authority by reason of their insanitary condition, and regarding one of which action has already been taken under Section 30. The number of actions now in process or already completed within the Brownfield Area has already been stated.

"The Facts of the Case.

"So far as these refer to the district of Brownfield it is unnecessary to consider the evidence of unhealthiness in any detail here, because it has already been made the subject of official reports, and the facts are not in dispute.

"Portions of the population of this district, as of some parts of the added districts to the east and west thereof, are living in insanitary conditions. These conditions the Local Authority are endeavouring to remove, and to a substantial extent their object has already been accomplished.

"In so far as the choice of a particular method of accomplishing this aim is left to a Local Authority, there is an important physical feature of the whole district which should be borne in mind.

"The district referred to by the complainers is penetrated by straight and wide streets running parallel (in all cases save one) to each other, and direct from Argyle Street to the Clyde—James Watt Street, Brown Street, Carrick Street, and M'Alpine Street being each 50 feet wide, and Washington Street 60 feet wide, while West College Street, which runs east and west between Brown Street and M'Alpine Street, is 46 feet wide. Behind the front lines of houses, however, there are others which have been built on sites too restricted for healthy occupancy, and which are in reality the back yards usually devoted to the provision of a washing-house and other offices for the front land tenants. This misuse of the ground between tenements fronting parallel and adjacent streets contributes to the sum of the defects existing.

"Moreover, the rectangular distribution of the streets and the regularity of their building lines have an important bearing, in my opinion, in considering the steps which are necessary to remove the unhealthy conditions existing.

"Section 4 of the Housing of the Working Classes Act presupposes that the evils connected with the houses and the sanitary defects existing within a given area cannot be effectually remedied otherwise than by an improvement scheme 'for the rearrangement and reconstruction of the streets and houses within said area.' From what I have already said, the streets are as regular and almost as wide as any modern building scheme would contemplate, and no rearrangement of many of the tenements still existing, or reconstruction of those already removed, could be regarded as remedial. Indeed, any scheme which would contemplate the reconstruction of many

of these houses on their present sites must necessarily reproduce the defects presently existing. It is not irregularity in streets or in building lines, but the continuance of back houses, in themselves unfit for human habitation, on sites inadequate for the purpose of healthy housing, which constitutes the main defects.

"These houses cannot, in my opinion, be occupied without prejudice to health, and, when the defects which they present are irremediable, the Act provides for their demolition. To these Section 30 of the Act seems strictly applicable.

"The problem is thus essentially, I believe, one of closing buildings which are uninhabitable, and of removing them when the defects are irremediable, and, in pursuance of this opinion, I have prepared the Representations under Section 30 already referred to.

"But, in addition to stating 'the facts of the case,' the official representation required of the Medical Officer of Health by Section 5 (2) must also express his opinion as to whether the area or any part thereof is unhealthy or is not unhealthy.

"It will be obvious that the whole narrative just recited proceeds on the opinion that certain conditions prejudicial to health exist within the area in question.

"The sole question at issue is how they are to be removed. I have already stated that the provisions of Part II. of the Act seem to me specially applicable to houses in the situation and condition of those within this area, and I have repeatedly given effect to this opinion by presenting representations regarding them.

"Having regard, therefore, to these provisions, and to the limitations contained in Section 4 of the Act, and quoted on page 4 hereof, I am of opinion that the existing evils can and are being dealt with otherwise than by an improvement scheme under Part I. of the Act, and that, in consequence, no representation under that part is necessary.

(Signed) "A K. CHALMERS,
"*Medical Officer of Health.*"

"Sanitary Chambers,
"Glasgow, 12th March, 1904."

The Master of Works favours me with the following return of linings for the erection of new houses granted by the Dean of Guild Court, between 1st September, 1902, and 31st August, 1903 :—

Houses and Shops.

Districts.	Apartments.						Shops.	
	1	2	3	4	5	6	Single.	Double.
Central, - A	13	15	1	...	...	...	10	5
Western, - B	...	3	15	...	...	...	...	...
Eastern, - C	215	703	...	...	...	...	29	15
Southern, - D	65	162	49	...	...	...	3	9
Northern, - E	16	68	10	...	...	...	10	3
St. Rollox, - F	203	537	100	1	...	2	3	1
Queen's Park, G	...	...	683	234	57	138	...	..
Maryhill, - H	253	629	345	106	68	146	5	3
	765	2,117	1,203	341	125	286	60	36

Farmed-out Houses and Houses Let in Lodgings.

In reporting on the census, I found it desirable to refer to the population in Farmed-out Houses in dealing with the number known to exist at that time. A considerable increase has taken place since, and the following table shows the

numbers of such, and of Houses Let in Lodgings, and their ward distribution, as at 31st December, 1903.

The number of one and two-apartment houses now "farmed out" is 1014, as compared with 806 at the census; they are present in each ward of the old city, except Dalmarnock, Blythswood, Park, and Woodside; they are still, as in 1901, most numerous in the District of Calton; but are present in considerable numbers also in Whitevale, Broomielaw, Blackfriars, and Anderston Wards.

FARMED-OUT HOUSES AND HOUSES LET IN LODGINGS ON REGISTERS AT 31ST DECEMBER, 1903.

WARDS.	FARMED-OUT HOUSES.			HOUSES LET IN LODGINGS.	GRAND TOTAL.
	Consisting of 1 Apt.	Consisting of 2 Apartments.	Total Number.	Total Number. (All sizes.)	
1. Dalmarnock, -	...	...	...	58	58
2. Calton, - -	197	120	317	49	366
3. Mile-End, -	9	3	12	12	24
4. Whitevale, -	91	44 and one 3 Apts.	136	47	183
5. Dennistoun, -	23	23	46	...	46
6. Springburn, -	...	2	2	33	35
7. Cowlairs, - -	...	...	...	18	18
8. Townhead, -	50	5	55	21	76
9. Blackfriars, -	29	68	97	24	121
10. Exchange, -	3	13	16	...	16
11. Blythswood, -	...	...	...	...	...
12. Broomielaw, -	46	79	125	14	139
13. Anderston, -	63	36 and one 4 Apts.	100	45	145
14. Sandyford. -	...	...	...	11	11
15. Park, - -	...	...	...	...	...
16. Cowcaddens, -	42	6	48	47	95
17. Woodside, -	...	...	...	22	22
18. Hutchesontown,	1	14	15	19	34
19. Gorbals, - -	26	14	40	44	84
20. Kingston, -	4	1	5	31	36
21. Govanhill. -	...	...	...	...	...
22. Langside, - -	...	...	...	...	...
23. Pollokshields, -	...	...	...	...	...
24. Kelvinside, -	...	...	...	...	...
25. Maryhill, - -	...	...	...	139	139
CITY, - -	584	430	1,014	634	1,648

PORT LOCAL AUTHORITY.

The inspection of incoming shipping for the purpose of detecting the presence of infectious diseases was continued during the first nine months of 1903 on the lines described in former reports. It was directed chiefly to vessels coming from plague-infected ports, and included the trapping and subsequent bacteriological examination of rats, with a view to the discovery of infectious disease occurring among them.

During this period the work accomplished was as follows:—

Number of ships inspected, ...	172
Nationality and number of persons forming crews inspected—	
Europeans, ...	2,015
Chinese, ...	1,088
Natives of India, ...	7,507
Number of ship rats examined, ...	56

In all these the results were negative.

On 1st October, 1903, the Order of the Local Government Board constituting the Local Authority of Glasgow the authority also for the Customs Port of Glasgow came into operation. The need for a uniform system of administration in the upper reaches of the River Clyde had been demonstrated during the occurrence of plague in 1900, and on 21st January, 1901, the Corporation of Glasgow formally resolved to make application to be constituted a Port Local Authority under Section 172 of the Public Health (Scotland) Act, 1897. After a local enquiry, conducted by Mr. Andrew Jamieson, K.C., Sheriff of Perthshire, who had been appointed Commissioner for the purpose, the Order was granted on 7th August, 1903.

It extends to the whole Customs Port of Glasgow, save the harbours of Dumbarton and Renfrew, the Forth and Clyde Canal to the east of the creek and harbour of Bowling and the harbour works connected therewith, and includes the place for the time being appointed as the Customs Boarding Station for said Port and the mooring-place appointed for the time being under any Regulation issued by the Local Government Board under Part IV. of the Public Health (Scotland) Act, 1897.

During the first fortnight of October an endeavour was made to ascertain how far advance knowledge of the impending arrivals at the Boarding Station obtainable from local sources could be utilised for the purposes of inspection by a local medical practitioner, but it became rapidly obvious that this was insufficient, and on 19th October Dr. Wright was appointed Boarding Medical Officer at Greenock, and on 10th December a second Medical Inspector (Dr. Sieger) was added. Both devote their whole time to the work, and are assisted by two lay inspectors.

Within the Glasgow district there is also an inspector for the detection of nuisances, an epidemic inspector devoting half-time, and an inspector also devoting half-time for the purpose of trapping rats for bacteriological investigation.

The following Tables and Report present a summary of the work of medical inspection at the Boarding Station conducted during the months October-December, 1903. They were originally prepared in compliance with a request by the Local Government Board to be furnished with a report showing—

(1) The total number of vessels arriving from foreign;

(2) Of these, the number medically inspected, distinguished (*a*) number under the Cholera Order, (*b*) number so inspected on account of other diseases, (*c*) number of vessels from which samples of rats were taken for bacteriological examination;

(3) Number of persons medically examined under 2 (*a*) for the detection of plague;

and also asking that the Medical Officer of Health should state generally the result under 2 (*c*) and as to ships with reference to definition of "infected" in Article I. of the Order, and further, in general terms, the geographical distribution of the ports regarded as infected with plague:—

TABLE I.—NUMBER OF SHIPS ARRIVING FROM FOREIGN.

Class.*	October.	November.	December.	Total.
(A) H.M. Customs, ...	106	111	127	344
(B) No. of foregoing coming from Ports infected within the meaning of the Cholera Order,	21	26	29	76
(C) From infected Ports, but reaching Clyde "light"—boarded under Art. 8 of Order,	9†	23	24	56†
	—	160	180	—

* The distinction between Classes (A) and (C) arises from the term "foreign" being restricted by the Customs Officers to ships arriving with "incoming foreign cargo on board."

† From October 19th only.

TABLE II.—NUMBER OF ARRIVALS BOARDED, AND OF CREWS INSPECTED, BY MEDICAL OFFICER AT BOARDING STATION.

Class.	October.		November.		December.		Total.	
	Ships.	Crews.	Ships.	Crews.	Ships.	Crews.	Ships.	Crews.
From Infected Ports—								
(B), ...	10	522	26	1,310	29	1,342	65	3,174
(C), ...	9	477	23	1,012	24	1,006	56	2,495
	19	999	49	2,322	53	2,348	121	5,669
From Non-infected Foreign Ports—								
(D),*	56	1,215	111	4,384	134	4,355	301	9,954
	75	2,214	160	6,706	187	6,703	422	15,623

* Includes 26 vessels in November and 36 in December, which reached the Clyde from foreign voyages, but without foreign cargo on board.

TABLE III.—NUMBER OF SHIPS COMING FROM INFECTED PORTS ON WHICH RATS WERE OBTAINED FOR BACTERIOLOGICAL EXAMINATION.

	October.	November.	December.	Total.
Ships, ...	15	14	16	45
Rats examined (all negative), ...	112	88	90	290

Ships where traps were set, but no rats caught, are not included. Several shipping companies retain the services of rat-catchers at other ports—chiefly London and Liverpool—and in these vessels few or none are found. A similar custom is followed by one or two companies in Glasgow.

It will be observed that the number of ships boarded and of crews medically examined is not confined to those regarded by the Customs as "coming foreign," the object of the boarding being primarily to ascertain the conditions of health existing on all ships trading with foreign ports, whether they are infected or not.

No case of infectious disease within the meaning of the Public Health Act has been detected, and it has not been thought necessary in the present summary to include any reference to other diseases discovered.

As to the distribution of plague in foreign ports, a pretty wide interpretation is applied, and the examination is practically extended to all ships coming

from ports in which the disease has been present in recent years. Thus it includes all ships coming from ports east of the Suez Canal, from Black Sea ports, from the Levant, and from the Mediterranean generally. With the same object it is extended to ships coming from certain ports in South Africa, South America, and Australia.

I am disposed to attach considerable importance to the systematic examination of rats, and particularly of those on board ships coming from presently or recently infected areas. This work is done in the harbours, and the numbers caught and examined are as stated in the preceding table.

(Report to Local Government Board ends here.)

Conditions affecting the Health of Seamen.

As was to be expected, the establishment of a definite system of inspection of shipping has brought prominently under notice the existence of many conditions on board ship which are prejudicial to the health of seamen. These chiefly affect the conditions of accommodation on board, in which respect, however, the requirements of the Sixth Schedule of the Merchant Shipping Act are quite specific. Para. (1) thereof provides that any place occupied by seamen or apprentices shall be securely constructed, properly lighted and ventilated, properly protected from weather and sea, and, as far as practicable, properly shut off and protected from effluvium which may be caused by cargo or bilge water.

It should be possible to give reasonable effect to this provision while the ship is in course of construction, but to attempt the remedy of defects in lighting and ventilation after the ship is in commission is sometimes barely possible.

Stress of weather and the safety of the ship are too often urged in excuse for neglecting the requirements both of light and ventilation, while it is forgotten that places which cannot be effectively lit and ventilated should not be designed for sleeping accommodation at all.

Dr. Wright deals with such defects as most urgently require remedy in the following abstract of a paper which he submitted to the Congress of the Sanitary Institute held in 1904:—

Forecastle.—The space prescribed by the Merchant Shipping Act is 12 superficial feet of floor space and 72 cubic feet per man. The Royal Commission on Labour of 1894 recommended that this be increased to 120 cubic feet.

Lower forecastles are necessarily dark from their position, are always unsatisfactory, and cannot be kept in a sanitary condition.

The sides of the forecastle in iron ships contribute towards the production of moisture from condensation of vapours exhaled by the occupants. The best method to obviate this is to coat all iron vessels with finely granulated cork. This can always be kept clean and regularly painted.

Bunks should not be built close up to the side, but a sufficient interval should be left in order to permit a man to get round them to clean and paint them. Neither should bunks be made of wood, but of iron painted a light colour, of sufficient length and breadth, and in two tiers only, the bottom tier being at least 12 to 18 inches from the floor.

The position of food lockers also requires more consideration, as they are often built up against the partitions of paint or lamp lockers, and sometimes against that of a water-closet. Paint and lamp lockers should never adjoin living rooms unless separated therefrom by an iron bulkhead. The ideal position for food lockers would be a specially constructed apartment outside the sleeping quarters, and well removed from possible contamination from water-closet, lamp, or paint lockers.

It is to be remembered that the internal fittings of forecastles do not usually form part of the main structure of a vessel, thus making it easier to obtain the desired reform. For the same reason, also, those matters receive little or no attention at the hands of the Board of Trade. They have merely to deal with an empty space, where

fore and aft bulkheads, paint and lamp lockers, boatswain's and donkeyman's berths, and food lockers, as a rule, are left to the discretion of the builders, who in this, as in other important sanitary matters, are allowed too much latitude. What is wanted is a properly recognised authority to supervise the construction of those places whilst the vessel is in the builder's hands.

Lighting.—Few forecastles are sufficiently lighted, and many of them are very dark. In almost all the only provision to be found is that of side ports. The rays of light coming in therefrom, being in a lateral direction, are usually obstructed by bunks, &c., and therefore only serve to illuminate that portion of the quarters upon which the light directly falls, leaving the remainder in comparative darkness. The floors are always in the dark, and dampness and dirt is thus encouraged.

Ventilation.—Ventilators are too frequently absent, and when present are either stopped up with rags or are placed in positions where they cannot serve the purpose for which they were intended. Ventilators are too often introduced with reference only to the arrangements on the deck above. By placing two swan-necked ventilators just inside the knightsheads, where they will be well protected and connected below the deck to each side of the forecastle by a pipe, and in the passage way, near the doorway on either side a cowl ventilator, a constant through current would be induced, and there would be no necessity to close them during bad weather.

Protection from Weather and Sea.—Lower forecastles may be considered sufficiently protected from weather and sea, but not so in the case of upper forecastles, where leakage is common through plates and inefficient ports and also from the deck above.

Protection from Effluvia caused by Cargo and Bilge Water.—This provision is a dead letter, for practically no forecastle is without effluvia from cargo and bilges. The reason is to be found in insufficiently caulked linings and floors and defective bulkheads. The bilges are constantly being supplied with water from all parts of the ship, and this water contains decomposing organic matter in varying amount, the gases arising from which are unhealthy and noxious, and pervade the whole ship in their passage upwards. The bilges should be regularly pumped dry and frequently washed out with disinfectant solution, and all possible crevices or inlets to sleeping quarters carefully examined, and re-caulked or remedied immediately when found. Similarly, the fore peak is a source of nuisance. The entrance to it is through a trap in the floor of the crew's quarters. This hatch is seldom tightly secured, and hence offensive odours find their way readily into the crew's sleeping quarters. The fore peak should never open directly into the forecastle, but ought to be separated therefrom by a passage leading direct to the hatch.

The chain locker is another sort of nuisance, situated as it is below the forecastle floor. There is always a certain amount of mud adhering to the cable, and consequently we have a damp mass giving off a most unpleasant smell immediately below where the men sleep.

Heating.—A proper steam-pipe arrangement is the best, safest, and cleanest method of furnishing the necessary amount of heat consistent with the requirements of health. The situation of the radiators, however, is sometimes bad, and a proper diffusion of the heat through the whole forecastle is not afforded. The old-fashioned "bogie," which takes the form of a small square stove constructed of thin cast iron, is either red hot or choked with ashes or broken beyond repair, and should be condemned. A circular wrought-iron slow-combustion stove, lined with fire-clay lining, is better, less costly, and supplies a steady heat when charged.

Latrines.—Sailors' closets are, generally speaking, abominations. The structure should be sufficient for a man to stand in upright, and should have ample light and ventilation. The floor should be of cement, with a good fall outwards. The closet itself should be an enamelled-iron hopper attached to an iron soil pipe open to the air, and the seat made to lift upon a hinge. The walls of the water-closet also should be regularly limewashed, and kept sweet and clean. All closets should be flushed from the engine, and those which are flushed only by the hand should no longer be tolerated, as they are only open cesspools, and are always neglected.

Lavatory.—In very few vessels in the mercantile marine is there such a thing as lavatory accommodation for the sailor; in other words, there is not a wash-hand basin or bath. Some provision, however simple—it need not be elaborate—should be made

to enable a man to wash himself. A small space is all that is required, with a cheap enamelled wash-hand basin or two and a similar bath. This would be placed in an iron compartment, or, if such could not be obtained, the floor might be cemented or lined with sheet lead and efficiently drained. Nor should there be any difficulty in furnishing a hot-water supply in any steamer, for the water at any desired temperature is there, and it only wants a pipe to convey it.

Cattle Ships.—A large number of such vessels reach this port annually, carrying great accumulations of manure, reaching as much as sometimes between fifty and sixty tons, the fluids expressed from which find their way through crevices to all parts of the ship, invading sleeping quarters, circulating round drinking-water tanks, and contaminating bilges. After a ship has been employed in this trade for some time it becomes thoroughly saturated with this heavy odour, and practically nothing can be done to remove it, and yet those same vessels are permitted alternately to act as passenger and cattle ships. A cattle ship should be built specially for the purpose, and should continue to carry cattle only. The present system of conveying passengers in vessels soaked throughout with cattle emanations cannot be too strongly deprecated. It is also desirable that the manure on board cattle ships should be discharged along with the cattle. At the present time it frequently happens that the cattle are landed at Liverpool and the manure brought on to the Clyde.

Destruction of Mattresses (Natives of India and Foreigners).—On account of the usually filthy condition of those mattresses, I should recommend that owners of vessels carrying Lascar crews be asked to destroy them in the ship's furnace every voyage. They are very cheap, and are usually so dirty and beyond repair that burning is the only possible procedure.

Vaccination.—Of 11,286 seamen examined with a view to the discovery of vaccination marks, 1,296, or 11·5 per cent., showed no vaccine cicatrix, and in 845, or 7·5 per cent., the marks were unsatisfactory.

FACTORY AND WORKSHOP ACT, 1901.

Report by Medical Officer in Compliance with Requirements of Section 132.

In a circular issued by the Local Government Board in November, 1903 (Public Health No. VII.) containing revised instructions to medical officers regarding their annual reports, the requirements of the above Section are thus set forth :—

"The duties of Local Authorities in regard to workshops and workplaces are fully set forth in a Memorandum, dated February, 1903 (B. 37,268), issued by the Home Office, of which a copy is sent herewith. In respect of these duties the chief points to be reported on by the Medical Officer of Health may be thus classified :—

"(1) Sanitary condition of workshops and workplaces, including—

- (*a*) Cleanliness.
- (*b*) Air space.
- (*c*) Ventilation.
- (*d*) Drainage of floors on which wet processes are carried on.
- (*e*) Provision of suitable and sufficient sanitary conveniences.

"(2) Special sanitary regulations for bakehouses.

"(3) Home work. Under this heading comes the prevention of home work being carried on in dwellings that are injurious or dangerous to the health of the workers through overcrowding, want of ventilation, or other sanitary defect, or in dwellings in which infectious disease exists.

"(4) The keeping of the lists of outworkers in certain branches of industry which are to be furnished by employers, and the transmission of the name and place of employment of any such outworker, who does not reside in the district, to the council of the district in which he works.

"(5) The keeping of a register of workshops."

REGISTER OF WORKSHOPS.

In order to summarise shortly the character of the principal workshop industries, their distribution throughout the several wards of the City, and the sex of the persons employed therein, I have had Tables XXXVI. to XXXVIII. annexed hereto prepared from the district registers, and have added columns to show in some detail the several items contained in Section (1) of the foregoing circular of the Local Government Board.

The main object of Table XXXVI. is to separate out laundries, bakehouses, and other places where food is prepared, from the general body of workshop industries, and to show the number of visits of inspection which were made to these during the year.

The total number registered at the end of 1903 is thus shown to be 4,131, as compared with 4,054 at the end of the previous year, and to these during the course of the year 23,741 visits were made, as compared with 20,119 in 1902. In connection with these visits, 1,535 notices were issued, calling attention to defects which are specified in some detail in the first column of Table XXXVII. This table shows the nature of the defects discovered and how they were dealt with.

Dealing in detail with the several items in Section (1) of the foregoing circular of the Local Government Board, it may be observed that of the 482 workshops in in which want of cleanliness was observed, a large number consisted of statutory notices for lime-washing. In 37 instances there was defective light and ventilation, and in 7 there was over-crowding. Of 495 defects other than those above specified, the majority were composed of dirtily kept stairs or water-closets, or defective supply of water for potable purposes.

Provision of suitable Sanitary Conveniences.

These are grouped together, and number in all 521, representing the several defects indicated in the heading of Section 6, Table XXXVII.

It will be observed that the number of defects remedied during the year does not correspond with the number discovered, for, towards both the beginning and end, several are carried over from one year to the next following.

It should be noted that, of the 97 intimations received from the Factory Inspector under Item 6, 62 were intimations of notices served under the Order of 4th February, 1903, regarding defective water-closet accommodation.

NATURE OF THE PRINCIPAL TRADES.

In Table XXXVIII. an endeavour has been made to indicate the nature of the principal trades, and the sex of the workers employed therein. Again, the details are stated in wards for the several trades indicated, and may thus be summarised:—

Workshops employing	males only,	...	...	...	726	2,240
,, ,,	females,	...	...	...	841	
,, ,,	both sexes,	...	...	...	673	

while 997 employ, in addition, young persons.

HOME WORKERS.

In a similar manner, the out-workers engaged in the principal industries concerned with the manufacture of clothing and wearing apparel have been tabulated in Table XXXIX.

Taking the columns referring to February as an illustration, it will be seen that lists, in terms of Section 107 of the Act, were received from 319 employers, 212 of which were lists of workers, and 107 lists of contractors, so that the number of home workers in these trades must have been considerably greater than is represented by the total of 1,329 in the out-workers' lists. An unknown but

considerable number, also, of out-workers are in the employment of more than one firm. It is not easy to explain the decrease from 377 to 292 in the lists of contractors received during August last; but it may be noted as having some relation, probably, to seasonal fluctuation in these industries.

To the houses of these workers 1,964 visits were made during the year, and 25 of them were found to be in a dirty or insanitary condition.

In connection with this subject of home work, it seems to me desirable that attention should be directed to the varied uses to which the initial space of 400 cubic feet per head (which is the allowance under Statute in Glasgow houses of the smaller size), may be put. It will be remembered that the allowance of cubic space required per adult in lodging-houses and in houses of the size referred to is the same; but in the lodging-house the 400 cubic feet which is allowed to the inmate as sleeping space is not devoted to any other purpose during the day, while in the smaller-sized houses the 400 cubic feet of space may be occupied alternately throughout the 24 hours for living in, sleeping in, and working in. The physiological value of the allowance in each case to the individual occupant will therefore vary largely, and it appears desirable that the Act should be more specific in its requirement as to the condition under which home work may be permitted. These might with advantage be made to include a statement of the number of apartments and inmates in each house, and whether the apartment used as a work-room was also occupied by the worker, or others, for living or sleeping purposes.

TABLE XXXVI.—1903.—NUMBER OF WORKSHOPS OF SEVERAL KINDS ON THE REGISTER.

Wards.	Laundries.			Bakehouses.			Restaurant Kitchens.			Other Food Places.			All Other Workshops.			Total Workshops.	No. of Inspections, 1903.	No. of Notices, 1903.	No. of Prosecutions 1903.
	On Register, 1902.	Added, 1903.	On Register, 1903.	On Register, 1902.	Added, 1903.	On Register, 1903.	On Register, 1902.	Added, 1903.	On Register, 1903.	On Register, 1902.	Added, 1903.	On Register, 1903.	On Register, 1902.	Added, 1903.	On Register 1903.				
1	6	1	7	...	...	11	10	...	10	3	...	3	142	14	156	187	721	26	...
2	9	4	13	...	...	22	4	11	15	4	4	8	221	154	375	433	4,435	172	...
3	9	3	12	...	...	12	3	1	4	10	5	15	87	64	151	194	1,246	32	...
4	...	3	3	...	...	14	3	3	6	2	3	5	49	105	154	182	1,488	46	...
5	1	6	7	...	...	6	...	2	2	...	...	...	18	55	73	88	507	19	...
6	2	...	2	...	...	4	...	...	...	...	...	...	10	6	16	22	131	8	...
7	3	...	3	...	...	6	...	...	...	...	...	...	27	1	28	37	79	2	...
8	4	1	5	...	...	14	...	...	...	1	...	1	25	26	51	71	353	15	...
9	6	2	8	...	...	17	8	...	8	3	1	4	278	113	391	428	2,742	211	...
10	...	...	...	...	...	10	26	1	27	...	1	1	275	75	350	388	1,900	150	...
11	1	1	2	...	...	6	18	6	24	...	1	1	243	53	296	329	2,387	150	...
12	2	2	4	...	...	6	16	2	18	...	1	1	165	55	220	249	2,425	186	...
13	1	1	2	...	...	6	...	...	...	...	...	...	22	6	28	36	16	5	...
14	...	1	1	...	...	18	...	...	...	1	...	1	28	23	51	71	55	9	...
15	4	1	5	...	...	8	...	...	...	1	...	1	60	37	97	111	68	6	...
16	8	3	11	...	...	28	4	...	4	...	...	...	110	44	151	194	639	62	...
17	22	1	23	...	...	13	...	...	...	...	...	...	104	7	111	147	341	13	...
18	13	3	16	...	...	9	...	...	...	1	1	2	44	11	55	82	680	47	...
19	21	4	25	...	...	19	3	...	3	3	...	3	342	44	386	436	1,615	189	...
20	16	10	26	...	...	13	10	5	15	2	2	4	115	89	204	262	1,792	184	...
21	5	...	5	...	...	6	...	...	...	...	...	...	48	12	60	71	26	...	...
22	8	1	9	...	...	7	...	...	...	1	...	1	20	6	26	43	30	2	...
23	2	...	2	...	...	6	...	...	...	...	...	...	16	3	19	27	30	...	...
24	2	...	2	...	...	2	...	...	...	...	...	...	18	...	18	22	1	1	...
25	2	...	2	...	...	7	...	...	...	...	...	...	10	2	12	21	34	...	...
	147	48	195	...	...	270	105	31	136	32	19	51	2,477	1,002	3,479	4,131	23,741	1,535	

TABLE XXXVII.—1903.—Nature of Defects discovered and dealt with.

Nature of Defect.	Found by Inspector.	Notified by Factory Inspector.	Notices Issued.	Remedied during Year.	Prosecutions.
I.—Under Public Health Act—					
1. (*a*) Want of cleanliness in home-workers' premises, - - -	25	...	4	25	...
(*b*) In others, - - - - -	482‡	13	450	490§	...
2. Defective ventilation or light, -	37	1	20	35	...
3. Want of air space, overcrowding,	7	3	1	8	...
4. Drainage of floors where wet process carried on, - - -	...	...	...	...	...
5. Other defects,* - - - - -	495	2	444	365	...
6. Sanitary accommodation— (*a*) Insufficient, - - - - (*b*) Unsuitable, - - - - (*c*) Not separate for sexes, - - (*d*) Dirty or choked, - - - (*e*) Otherwise defective, - -	521	97¶	505	328	...
II.—Contraventions of Factory Act—					
7 (*a*) Failure to supply list of out-workers (Sec. 107), - - -	...	...	...	...	...
(*b*) Other contraventions (if any),	...	...	...	...	...
	1,567	116	2,567	1,251	...

* Chiefly dirty stairs or water-closets, or defective water supply.

‡ Chiefly lime-washings.

§ Several of these apply to previous year.

¶ 62 of these were intimations under Sanitary Accommodation Order of 4th February, 1903.

TABLE XXXVIII.—SEX OF WORKERS, OTHER THAN HOME WORKERS, IN CERTAIN OF THE PRINCIPAL TRADES, 1903.

Ward	Boot, &c., Makers.				Cabinetmakers, &c.				Dressmakers.				Jewellers, &c.				Laundries.				Milliners.				Plumbers, &c.				Tailors.			
	M.	F.	Both Sexes.	Young Persons.	M.	F.	Both Sexes.	Young Persons.	M.	F.	Both Sexes.	Young Persons.	M.	F.	Both Sexes.	Young Persons.	M.	F.	Both Sexes.	Young Persons.	M.	F.	Both Sexes	Young Persons.	M.	F.	Both Sexes	Young Persons.	M.	F.	Both Sexes	Young Persons.
1	8	...	...	...	5	...	2	1	...	32	...	9	5	...	...	1	...	7	...	4	...	6	1	2	10	...	2	9	7	3	3	2
2	39	...	10	5	17	8	7	10	...	46	...	19	12	...	...	3	...	13	...	8	...	10	...	6	18	...	...	11	16	6	28	18
3	3	...	1	...	4	2	4	1	...	19	...	7	9	...	1	2	...	11	...	10	1	6	...	4	9	...	...	5	4	2	9	5
4	8	...	...	...	6	...	7	4	...	18	...	3	8	...	2	3	...	3	...	2	...	8	1	5	6	...	2	7	9	1	10	8
5	9	...	1	...	...	...	...	...	...	18	...	3	3	...	2	2	...	7	...	3	...	5	...	2	3	...	2	2	1	...	5	...
6	6	...	...	1	...	...	...	...	...	9	...	5	...	...	...	...	...	4	...	3	...	1	...	...	1	...	...	...	4	...	2	...
7	8	...	...	...	1	...	...	1	...	4	...	3	1	...	...	...	...	3	...	2	...	1	...	...	1	...	...	...	2	...	6	6
8	9	...	...	...	2	1	3	3	...	11	1	5	...	...	...	...	...	4	1	4	...	5	...	1	2	...	1	1	3	1	6	2
9	17	...	8	2	3	...	3	4	...	56	...	19	12	...	1	5	...	9	...	6	...	10	1	6	15	...	...	13	17	3	98	78
10	2	1	8	7	...	2	5	4	...	10	7	14	29	2	6	18	...	3	...	...	...	1	...	1	4	...	...	6	13	10	99	73
11	4	...	...	...	2	2	9	9	...	17	3	15	5	...	1	5	...	3	...	...	...	4	1	3	13	...	...	8	5	1	37	23
12	11	1	1	...	6	...	5	6	...	4	2	3	9	...	...	2	...	3	...	1	...	2	1	2	8	...	...	3	13	...	36	28
13	1	...	...	...	1	...	1	...	...	6	...	3	...	...	...	...	...	1	1	1	...	1	...	...	...	...	...	...	1	1	2	2
14	2	...	...	...	1	...	3	2	...	18	1	12	1	...	1	1	...	...	1	1	...	3	...	1	...	...	...	...	2	1	3	1
15	11	...	1	...	1	1	2	2	...	34	...	19	3	...	...	...	...	4	...	3	...	15	...	9	5	...	...	3	1	2	6	6
16	28	...	1	...	6	1	2	4	...	27	...	16	5	...	...	1	...	20	...	22	...	1	...	1	17	...	...	4	16	...	20	21
17	7	...	2	...	5	...	2	...	...	11	...	7	2	...	...	1	...	9	3	7	...	5	.	3	5	...	1	3	9	3	9	6
18	7	1	2	2	1	...	3	1	...	17	...	3	...	...	...	...	...	13	1	10	...	4	...	2	...	...	...	...	...	...	4	1
19	26	...	10	4	10	3	11	10	...	50	...	27	4	...	...	2	...	21	3	12	...	14	...	11	12	...	...	10	24	9	84	44
20	22	...	3	2	11	2	9	4	...	18	...	7	2	...	...	...	...	24	3	21	...	10	...	4	6	...	1	6	4	1	18	9
21	1	...	...	1	4	...	...	2	...	12	...	7	...	...	...	...	...	6	...	2	...	1	...	1	...	...	...	...	...	...	4	1
22	1	...	...	...	3	...	...	3	...	7	...	6	...	...	...	...	...	4	...	4	...	2	...	1	1	...	...	1	...	...	...	...
23	2	...	...	...	...	...	...	...	...	11	...	8	...	...	...	...	...	1	...	...	...	...	...	...	...	...	...	...	1	...	...	...
24	...	...	...	...	1	...	1	1	...	13	...	6	...	...	...	...	...	1	1	2	...	...	...	...	...	...	...	...	2	...	...	1
25	...	...	...	...	...	...	...	...	...	9	...	5	...	...	...	...	...	2	...	1	...	2	...	...	...	...	...	...	3	...	1	3
	232	3	48	24	90	22	79	72	...	477	14	231	110	2	14	46	...	176	14	129	1	117	5	65	136	...	9	92	157	44	490	338

Workshops employing	Males only, ...	726	2,240
Do.	Females only, ...	841	
Do.	Both sexes, ...	673	
Do.	Young persons, ...		997

TABLE XXXIX.—Nature of principal trades employing Out-workers.

Trades.	1903.—Number of Lists received, and of Out-workers and Contractors contained therein.								No. of Addresses of Out-workers.		
	1st February.				1st August.						
	Number of—				Number of—						
	Lists.		Workers.	Contractors.	Lists.		Workers.	Contractors.	Forwarded to other Authorities.		Received from other Authorities.
	Workers.	Contractors.			Workers.	Contractors.			Lists.	Workers.	
Tailors, - -	43	25	110	52	40	20	113	31	...	...	...
Dressmakers, -	8	3	28	16	8	1	31	1	...	...	...
Millinery, - -	9	14	27	29	8	14	20	30	...	...	1
Underclothing, -	26	1	139	9	31	1	255	17	...	...	...
Shirtmakers, -	15	...	162	5	26	1	327	1	...	...	...
Bootmakers, -	17	7	56	11	23	5	152	5	...	...	...
Others, - -	94	57	807	255	75	65	435	207	...	...	...
	212	107	1,329	377	211	107	1,333	292	127	299	1
	319				218						

UNDERGROUND BAKEHOUSES.

135 underground bakehouses are now known to have existed at the passing of the Act. Of these, 4 were closed in 1901, 4 in 1902, and 10 in 1903. With regard to the others, considerable progress was made during the year in carrying out structural alterations, in order to bring them into conformity with the requirements stated in my Report for last year. In many cases plans of proposed alterations were submitted for consideration, and in all, 314 visits of inspection were made.

AIR OF UNDERGROUND BAKEHOUSES.

Although many of these plans were only given effect to after the year 1903 had closed, it may be of service here to introduce a summary of the results obtained by the methods of ventilation adopted, as indicated by the amount of carbonic acid present.

It should be mentioned also that, while the height of ceiling was fixed at 8 feet for premises with a cubic capacity not exceeding 2,000 feet, and 8½ feet for those of greater extent wherever for some reason it was impossible either to lower the floor or so alter the ceiling as to attain the height specified, the proposed alterations were allowed to proceed, on the understanding that any reduced height of ceiling was to be compensated by an improved standard of ventilation. Consequently, while it had been stipulated that the CO^2 was not to exceed 10 per 10,000 volumes of air during daylight, this was raised to 9 in several cases where the ceiling did not conform with the requirements. The results, however, show that we might quite reasonably have asked 8 parts per 10,000, or even less.

In 43 bakehouses in which the alterations have been completed, and an analysis of the air made, the results may be stated as follows:—

Proportion of Carbonic Acid in Parts per 10,000 of Air.	Number of Bakehouses.
4—5	3
5—6	9
6—7	22
7—8	8
8—9	1

These results, I think, are to be regarded as extremely satisfactory, and indicate that, if the proportion of carbonic acid gas present, exclusive of that obtained from chemical sources, is to be taken as the standard of impurity, it would be no hardship, in underground premises, to ask that it, at least, should not exceed the limits reached in the majority of the above illustrations, that is from 6 to 7 parts per 10,000.

The addresses and conditions present in bakehouses closed during the year were as follows:—

Ward.	Address.	Date.	Remarks.
XII.	296 Argyle Street,	Feb., 1903.	Defective in ventilation, lighting, and structure, with regard to the condition of floors, walls, &c., and want of lavatory and cloak room accommodation.
XIX.	30 Dunmore Street,	May, ,,	Do. do.
XVI.	148 New City Road,	May, ,,	Do. do.
XI.	110 Sauchiehall Street,	June, ,,	Do. do.
XXI.	369 Cathcart Road,	June, ,,	Do. do.
XI.	60 Union Street,	Sept., ,,	Building altered: bakehouse removed.
XIX.	259 Main St., Gorbals,	Sept., ,,	Defective in ventilation, lighting, and structure, with regard to the condition of floors, walls, &c., and want of lavatory and cloak room accommodation.
XVII.	401 New City Road,	Oct., ,,	Do. do.
XII.	119 Argyle Street,	Nov., ,,	Do. do.
XIV.	18 Elderslie Street,	Dec., ,,	Do. do.

Table XL. has been prepared by the Sanitary Inspector to show certain details of the workshops measured and registered during the year, and appended to it are corresponding details regarding restaurants.

TABLE XL.—ABSTRACT OF WORKSHOPS MEASURED AND REGISTERED DURING 1903.

Nature of Workshop.	Number of Workshops.	Total Number of Rooms.	Total Number of Men.	Total Number of Women.	Total Young Persons, 14 to 18 Years.	Total Number of Children under 14 Years.	Average Cubic Feet of Space in each Room.	Average Cubic Feet of Space for each Person.
Aerated Water Manufacturer, ...	1	1	2	...	...	...	4,320	2,160
Artificial Limb Maker, ...	1	1	4	...	...	...	4,772	1,193
Boot, Shoe, and Slipper Makers, ...	125	149	362	28	12	...	2,219·3	822·6
Bedding Manufacturers, ...	3	7	7	10	2	...	4,303·5	1,585·5
Basket Makers, ...	2	2	4	...	1	...	3,504·5	1,401·8
Brush Makers, ...	2	3	9	1	2	...	4,060	1,015
Bottling and Labelling, ..	3	6	10	3	2	...	7,975·1	3,190
Blacksmiths, ...	17	20	51	...	4	...	4,563·6	1,659·4
Bakers' Utensil Maker, ...	1	1	3	...	1	...	23,520	5,880
Bristle Sorting, ...	1	1	4	...	...	...	1,200	300
Blouse Maker, ...	1	1	...	1	...	...	2,232	2,232
Button and Stud Maker, ...	1	1	...	1	1	...	1,382	691
Brassfounder, ...	1	1	3	...	...	...	5,535	1,845
Calenderer, ...	1	4	5	5	...	...	9,661·7	3,864·7
Cycle Makers, ...	9	9	14	...	2	...	2,265·7	1,274·4
Cork Cutter, ...	1	1	3	...	...	...	2,673	891
Carvers and Gilders, ..	13	14	33	...	4	...	5,536·5	2,113·8
Cabinetmakers and French Polishers, ...	61	82	199	114	36	...	7,419·3	1,743·2
Chair Makers, ...	3	3	6	...	1	...	3,307·3	1,417·4
Cutler, ...	1	1	2	...	...	...	1,680	840
Confectioners, ...	3	3	5	3	1	...	2,771·3	... 923·7
Coopers, ...	3	4	14	...	...	...	4,217·2	1,204·9
Clog Maker, ...	1	1	2	...	...	...	1,343	671·5
Carpet Maker, ...	1	1	1	2	...	...	6,020	2,006·6
Carriage Builder, ...	1	7	45	...	5	...	12,498	1,749·7
Cigarette Maker, ...	1	1	1	1	...	...	1,402	701
Cement Merchant, ...	1	1	1	1	...	...	4,313	2,156·5
Cartwright, ...	1	1	8	...	...	...	11,993	1,499·1
Curtain Tasseller, ...	1	1	...	3	...	...	1,436	478·6
Dressmakers, ...	145	168	...	481	117	..	1,672·9	469·9
Drapers, ...	2	2	...	5	1	...	564·5	188·1
Engravers, ...	9	11	23	...	23	...	3,445·2	823·8
Electrical Engineers, ...	4	5	12	...	3	...	2,309	769·6
Electro Plater, ...	1	1	2	...	...	...	4,366	2,183
Embroidering, ...	4	7	16	21	16	...	14,435·5	1,905·8
Feather Dressing, ...	2	2	...	4	...	...	1,270	635
Fancy-box Makers, ...	4	6	10	75	18	...	13,111·1	763·7
Fish-bass Maker, ...	1	1	...	6	...	...	5,015	835·8
Fishing-gut Manufacturer,	1	1	...	3	2	...	12,792	2,558·4
Farriers, ...	3	3	7	...	...	...	12,615·3	5,406·5
Funeral Undertakers, ...	4	11	18	...	...	...	4,768·9	2,914·3
Fishcurers, ...	2	2	7	2	2	...	3,403	618·7
Fish Box & Barrel Factory,	1	1	5	...	...	...	2,689	537·8

ABSTRACT OF WORKSHOPS MEASURED AND REGISTERED DURING 1903.—*Continued.*

Nature of Workshop.	Number of Workshops.	Total Number of Rooms.	Total Number of Men.	Total Number of Women.	Total Young Persons, 14 to 18 Years.	Total Number of Children under 14 Years.	Average Cubic Feet of Space in each Room.	Average Cubic Feet of Space for each Person.
Furriers, ...	3	5	6	6	5	...	2,113·8	621·7
Food Presser, ...	1	1	1	1	...	...	10,604	5,302
File Cutter, ...	1	1	12	...	2	...	4,027	287·6
Gum, Paste, and Ink Manufacturers, ...	2	3	3	8	5	...	4,888·6	916·6
Glass Stainer, ...	1	2	4	...	4	...	3,489	872·2
Glaziers, ...	3	4	8	...	3	...	5,726·7	2,082·6
Glass-paper Makers, ...	2	2	6	1	2	...	3,969	882
Hemmers, ...	2	3	1	7	5	...	3,625·6	836·6
Hosiery Knitting, ...	4	4	2	3	2	...	1,624·5	928·2
Hat and Cap Makers, ...	9	13	13	27	5	...	2,794·8	807·1
Hairdressers, ...	3	3	7	1	3	...	3,730·6	1,017·4
Heating Engineer,... ...	1	1	2	1	...	...	9,660	3,220
Hamcurer, ...	1	1	5	...	...	...	44,064	8,812·8
Horse-shoe Pad Maker, ...	1	1	6	...	4	...	3,950	395
Incandescent-mantel Maker, ...	1	1	1	...	2	...	3,497	1,165·6
Ironmongers, ...	2	2	4	...	1	...	4,449	1,779·6
Japanners, ...	4	7	9	8	1	...	2,356	916·2
Joiners and Wrights, ...	29	29	102	...	7	...	6,709·9	1,785·2
Jewellers, Goldsmiths, Watch and Clock Makers, ...	43	52	87	6	16	...	1,538·1	733·7
Laundries, ...	51	96	9	221	60	...	2,602·6	861·5
Lithographers, ...	2	3	4	1	2	...	2,416·3	1,035·5
Locksmith, ...	1	1	1	...	...	...	1,323	1,323
Lathsplitter, ...	1	1	8	...	4	...	5,916	493
Milliners, ...	44	48	...	110	36	...	1,728·1	568·1
Mantles and Costumes, ...	11	16	38	90	19	...	5,028·6	547·3
Manufacturers, ...	4	7	1	38	27	...	4,740·5	502·7
Machinist, ...	1	1	...	2	2	...	3,681	920·2
Musical Instrument Makers,	4	5	8	...	...	...	1,457·6	911
Machine Repairers, ...	2	2	6	...	5	...	3,502	636·7
Map Mounting, ...	1	1	...	2	1	...	5,733	1,911
Metal Workers, ...	3	3	6	...	4	...	5,984·6	1,795·4
Motor Repairer, ...	1	1	4	...	...	...	8,032	2,008
Napery Manufacturer, ...	1	2	...	2	...	...	12,120	12,120
Nautical and Scientific Instrument Makers,...	3	4	9	...	3	...	4,033	1,344·3
Outfitter, ...	1	1	...	1	1	...	4,410	2,205
Opticians, ...	3	3	8	...	2	...	2,621	786·3
Organ Builder, ...	1	2	1	3	3	...	2,080	594·2
Packers, ...	5	6	4	9	2	...	10,153·1	4,061·2
Printers and Bookbinders,	6	7	15	19	11	...	6,991·5	1,087·5
Paper-bag Maker, ...	1	1	...	12	...	...	4,400	366·6
Perambulator and Mail-cart Makers, ...	3	5	8	3	2	...	7,666·8	2,948·7
Pipe Makers and Mounters,	2	2	10	2	2	...	4,774·5	682
Picture-frame Makers, ...	8	13	24	1	1	...	2,857	1,428·5
Painters and Decorators,	11	12	51	...	20	...	2,150·5	363·4
Paint and Varnish Manufacturers, ...	2	2	6	...	...	...	15,746·5	5,248·8

ABSTRACT OF WORKSHOPS MEASURED AND REGISTERED DURING 1903.—*Continued.*

Nature of Workshop.	Number of Workshops.	Total Number of Rooms.	Total Number of Men.	Total Number of Women.	Total Young Persons, 14 to 18 Years.	Total Number of Children under 14 Years.	Average Cubic Feet of Space in each Room.	Average Cubic Feet of Space for each Person.
Plumbers and Gasfitters,...	40	42	144	5	44	...	3,652·5	794·8
Photographers, ...	3	11	8	12	5	...	1,401·5	616 6
Plasterers and Slaters, ...	3	3	27	...	5	...	3,997·6	374·7
Plaster Modellers,... ...	2	2	7	...	1	...	6,388·5	1,597·1
Portmanteau Makers, ...	2	2	6	...	1	...	3,629	1,036·8
Pudding Makers, ...	3	6	7	9	3	...	2,826·6	892·6
Poulterer, ...	1	1	2	...	...	...	5,184	2,542
Pattern Weaving and Darning, ...	2	3	12	9	...	...	10,572	1,510·2
Packing-box Maker, ...	1	3	1	...	3	...	2,049·6	1,537·2
Rag Sorting and Cleansing,	7	10	7	72	10	...	5,592·5	628·3
Shirt Makers, ...	3	4	...	37	5	...	6,570·2	635·2
Stay Makers, ...	3	3	...	7	1	...	2,867·6	1,075·3
Shawl Fringer, ...	1	1	...	2	...	...	1,904	952
Sporran Makers, ...	2	2	5	2	...	...	2,413	689·4
Sack & Bag Manufacturers,	4	4	4	36	...	...	7,548	754·8
Stamp Maker, ...	1	2	5	...	...	...	7,236	2,894·4
Saw Makers, ...	2	3	4	...	...	...	2,687·3	2,015·5
Saddlers, ...	13	22	47	...	8	...	2,803·8	1,121·5
Spirit Level Maker, ...	1	1	2	...	...	...	1,827	913·5
Sorting Tailors' Clippings,	1	3	...	10	...	...	4,200	1,260
Sausage-skin and Spice Makers, ...	6	9	15	10	3	...	5,127·5	1,648·1
Spelter Manufacturer, ...	1	1	5	...	...	...	10,560	2,112
Show-case Maker, ...	1	1	4	...	...	...	6,000	1,500
Stucco Ornament Maker,	1	1	10	..	...	...	5,907	590·7
Sculptor, ...	1	1	1	...	1	...	1,839	919·5
Seed Merchant, ...	1	1	2	1	1	...	4,563	1,140·7
Tailors, ...	185	243	642	414	146	...	2,768·5	559·6
Tinsmiths & Coppersmiths,	11	11	32	3	13	...	5,896·5	1,351·2
Tank and Cistern Maker,	1	1	4	...	...	...	12,757	3,189·2
Tea Blending and Packing,	2	2	4	1	5	...	7,931·5	1,586·3
Trunk Manufacturer, ...	1	2	10	...	1	...	22,960·5	4,174·6
Underclothing Manufacturers, ...	15	21	6	87	18	...	3,958·7	748·9
Upholsterers, ...	12	14	28	15	6	...	6,958·3	1,988·1
Umbrella Makers, ...	8	9	8	7	1	...	1,418	797·6
Venetian Blind Maker, ...	1	2	2	3	...	...	5,400	2,160
Weavers, ...	6	6	11	2	...	...	2,673·8	1,234
Wig Maker,...	1	1	3	...	...	...	7,087	2,362·3
Waterproof Manufacturers,	4	4	3	18	...	...	7,606·7	1,448·9
Wringing Machine Maker,	1	1	1	...	1	...	1,276	638
Wire Brush Maker, ...	1	1	1	...	1	...	906	453
Wire Workers, ...	2	3	14	...	2	...	9,633·3	1,806·2

TABLE XLI.—ABSTRACT OF RESTAURANTS MEASURED AND REGISTERED DURING 1903.

Districts.	Number of Restaurants.	Total Number of Rooms.	Total Number of Men.	Total Number of Women.	Total Young Persons, 14 to 18 Years.	Total Number of Children under 14 Years.	Average Cubic Feet of Space in each Room.	Average Cubic Feet of Space for each Person.
Central, ...	27	29	7	87	14	...	3,433·5	921·9
East, ...	11	13	14	14	3	...	1,004·9	421·4
North, ...	...	...	...	...	...	...	....	...
South, ...	6	6	1	11	2	...	2,025·5	868

A. K. CHALMERS, M.D.

Sanitary Chambers,

Glasgow, September, 1904

APPENDIX.

TABLE I.—Glasgow.—Population; Births and Deaths; Birth-rates and Death-rates per 1,000, also Deaths under 1 Year and Death-rates under 1 Year per 1,000 Born, from 1855 to 1903.

Year.	Population.	Births.	Deaths.	Birth-rate per 1,000.	Death-rate per 1,000.	Deaths under 1 Year.	
						Number.	Rate per 1,000 born.
1855	356,355	13,242	10,655	37·2	29·9	2,600	196
1856	362,606	15,170	10.298	41·8	28·4	2,713	179
1857	369,318	15,706	11,375	42·5	30·8	2,851	182
1858	376,131	15,889	11.472	42·2	30·5	2,846	179
1859	382,756	15.947	10,832	41·6	28·3	2,448	154
1860	389,843	15,943	12,436	40·8	31·9	2,905	182
1861	397,673	16,537	10,936	41·6	27·5	2,544	154
1862	405,789	16,400	11,565	40·4	28·5	2,562	156
1863	413,944	16,986	13.329	41·0	32·2	2.774	163
1864	420,738	17,411	13,674	41·4	32·5	3,051	175
1865	428,123	17,956	13,914	41·9	32·5	3.097	173
1866	437.850	18,288	12,829	41·8	29·3	2,905	159
1867	446,028	18,347	12,578	41·1	28·2	2,895	158
1868	455,000	18,607	13,832	40·9	30·4	3,127	168
1869	464,332	18,495	15,648	39·8	33·7	3,411	184
1870	471,453	19,355	13,955	41·1	29·6	2,991	155
1871	491,900	18,867	15.790	38·4	32·1	3,608	191
1872	494,824	20,158	14,053	40·7	28·4	3,198	159
1873	494.847	19,487	14,499	39·4	29·3	3,255	167
1874	498,270	20,039	15.845	40·2	31·8	3,240	162
1875	499,480	20,825	15,384	41·7	30·8	3,388	163
1876	502,299	20,981	13,763	41·7	27·4	3,166	151
1877	504,487	21,124	13,823	41·9	27·4	3,106	147
1878	507,420	20,622	14,157	40·6	27·9	3.285	159
1879	508,048	19,751	12,498	38·8	24·6	2,504	127
1880	509,732	18,912	13,304	37·1	26·1	2,842	150
1881	512,034	19,106	12,916	37·3	25·2	2,745	144
1882	517,904	19,735	13.046	38·1	25·2	2,959	150
1883	523,154	19,911	14,577	38·1	27·9	3,091	155
1884	528,459	20,557	13,942	38·9	26·4	3.094	151
1885	533,817	19,861	13,492	37·2	25·3	3,100	156
1886	539,231	19,862	13,104	36·8	24·3	2,786	140
1887	544,700	19.328	12,135	35·5	22·3	2,676	138
1888	550,226	19,309	11,681	35·1	21·2	2,560	133
1889	555,808	19,503	13,139	35·1	23·6	3,008	154
1890	561.447	19,279	13,374	34·3	23·8	2,880	149
1891	567,143	19,857	14,324	35·0	25·3	2.946	148
1892	669,059*	22,815	15,218	34·1	22·7	3,168	139
1893	677,883	23,173	15,798	34·2	23·3	3.649	157
1894	686,820	22,644	13,673	34·0	19·9	2,937	130
1895	695,876	22,803	16,344	32·8	23·5	3,538	155
1896	705,052	24,029	14,385	34·1	20·4	3,278	136
1897	714,919	23,880	15,727	33·4	22·0	3,826	160
1898	724,349	24,262	15,333	33·5	21·2	3,792	156
1899	733,903	24,249	15,828	33·0	21·6	3,696	152
1900	743,969	24,362	16,393	32·7	22·0	3,778	153
1901	764,467	24,206	16,197	31·7	21·2	3,607	149
1902	775.601	24,722	15,532	31·9	20·0	3,206	129
1903	786.897	25,135	15,073	31·9	19·0	3,663	146

* Extended City.

The figures in this Table are taken from the Registrar-General's Reports.

TABLE II.—Glasgow.—Estimated Population; Births; Deaths at all Ages and at certain Periods of Life, and their Proportion to the Population; also the Illegitimate Births in each Municipal Ward for the Year 1903.

Municipal Wards.	Estimated Population.			Births.		Illegitimate Births.		Deaths, all Ages.		Deaths at certain Periods of Life.						
	Without Institutions and Shipping.	Institntions and Shipping.	Total.	Number.	Rate per 1,000 Living.	Number.	Percentage of Total Births.	Number.	Rate per 1,000 Living.	Under 1 Year.	1—5 Years.	5—15 Years.	15—20 Years.	20—25 Years.	25—60 Years.	60 Years and above.
1. Dalmarnock, ...	50,859	598	51.457	2,083	40·9	96	4·6	979	19·2	291	211	49	22	31	238	137
2. Calton, ...	38,960	2,134	41,094	1,279	32·8	110	8·6	890	22·8	234	176	36	18	29	240	157
3. Mile-end, ...	43,169	404	43,573	1,784	41·3	97	5·4	1,003	23·2	271	189	51	30	25	265	172
4. Whitevale, ...	33,778	1.131	34.909	1,098	32·5	65	5·9	648	19·2	160	121	32	17	2	185	111
5. Dennistoun, ...	32,509	1.619	34,128	949	29·2	33	3·5	431	13·2	96	63	25	10	8	125	104
6. Springburn, ...	41.360	1,659	43,019	1,731	41·8	70	4·0	772	18·7	245	149	35	20	24	202	97
7. Cowlairs, ...	29,781	...	29,781	1,058	35·5	42	4·0	456	15·3	126	77	28	9	11	126	79
8. Townhead, ...	39,989	1,218	41,207	1,309	32·7	97	7·4	736	18·4	190	127	29	19	27	219	125
9. Blackfriars, ...	23,087	732	23.819	765	33·1	87	11·4	520	22·6	140	76	31	6	20	168	79
10. Exchange, ...	2,232	424	2,656	50	22·4	4	8·0	41	18·4	7	3	2	1	...	17	11
11. Blythswood, ...	3.596	332	3,928	34	9·4	4	11·8	49	13·6	6	5	3	3	4	20	8
12. Broomielaw, ...	8,337	1,144	9.481	266	31·9	37	13·9	230	27·6	53	27	9	6	2	97	36
13. Anderston, ...	29,452	1,221	30,673	1,023	34·7	56	5·5	544	18·5	135	83	35	4	20	170	97
14. Sandyford, ...	26,488	96	26,584	677	25·5	40	5·9	410	15·5	100	51	18	9	13	133	86
15. Park, ...	24,953	774	25.727	334	13·4	23	6·9	273	10·9	34	16	7	8	8	90	110
16 Cowcaddens, ...	39,960	1,139	41,099	1,403	35·1	147	10·5	957	23·9	272	170	42	17	33	277	146
17. Woodside, ...	45,653	...	45,653	1,533	33·6	78	5·1	693	15·2	186	104	43	15	16	205	124
18. Hutchesontown, ...	41.974	4	41,978	1,694	40·3	89	5·2	819	19·5	221	145	39	25	22	227	140
19. Gorbals, ...	36,537	797	37,334	1,019	27·8	67	6·6	693	19·0	154	104	35	17	22	208	153
20. Kingston, ...	34,762	661	35,423	1,058	30·4	61	5·8	651	18·7	174	105	34	14	20	206	98
21. Govanhill, ...	33,787	...	33,787	1,194	35·3	47	3·9	473	14·0	140	67	19	13	24	116	94
22. Langside, ...	29,625	445	30,070	641	21·6	10	1·6	307	10·4	44	16	12	7	10	110	108
23. Pollokshields, ...	16,984	...	16,984	188	11·0	5	2·6	164	9·7	22	9	7	3	6	41	76
24. Kelvinside, ...	18,854	741	19,595	218	11·6	8	3·7	151	8·0	16	3	7	6	2	58	59
25. Maryhill, ...	36,384	1,767	38.151	1,558	42·8	72	4·6	544	15·0	165	92	25	14	16	149	83
— Institutions and Harbour, ...	...	...	...	114	...	54	...	1,049	...	81	64	20	17	22	424	421
CITY.	763,070	19,040	782,110	25,060	32·0	1,499	6·0	14,483	18·5	3,563	2,253	673	330	437	4,316	2,911

TABLE III.—Glasgow.—Deaths at all Ages from Different Diseases in each Municipal Ward during 1903.

Municipal Wards.	All Causes.	Smallpox.	Diphtheria and M. Croup.	Scarlet Fever.	Fevers.			Measles.	Whooping-cough.	Diarrhœa.	Septic Diseases.	Tubercular Diseases.		Cancer, Malignant Diseases.	Diseases of Nervous System.	Diseases of Circulatory System.	Croup.	Diseases of Respiratory System.	Violence.	Premature Birth.	Uncertified.	All Other Causes.
					Typhus.	Enteric.	Undefined					Phthisis.	Other than Phthisis.									
1. Dalmarnock, ...	979	3	8	3	...	13	...	31	57	82	14	69	75	25	97	64	3	224	18	34	...	159
2. Calton, ...	890	...	5	2	2	11	...	32	44	65	6	84	60	27	85	62	5	176	21	26	11	166
3. Mile-end, ...	1,003	3	6	5	...	17	...	34	48	61	13	86	69	34	102	68	1	190	24	25	1	216
4. Whitevale, ...	648	1	5	8	...	10	...	18	23	26	7	63	56	27	59	52	4	128	16	21	5	119
5. Dennistoun, ...	431	...	5	10	...	5	...	8	21	12	5	32	41	21	39	45	...	76	3	17	...	91
6. Springburn, ...	772	...	4	3	1	5	...	20	21	39	8	62	63	19	64	45	4	169	30	25	1	189
7. Cowlairs, ...	456	...	7	2	...	4	...	3	31	17	10	34	31	15	41	33	3	93	16	19	...	97
8. Townhead, ...	736	1	3	2	...	7	1	25	39	27	11	54	57	27	60	58	1	146	24	31	1	161
9. Blackfriars, ...	520	...	2	2	...	6	...	12	14	30	6	53	28	9	54	28	...	128	23	17	4	104
10. Exchange, ...	41	...	...	...	...	1	...	...	...	1	...	4	1	1	4	5	...	9	2	1	...	12
11. Blythswood, ...	49	...	...	...	...	...	...	1	1	2	1	8	2	2	4	8	...	10	1	...	...	9
12. Broomielaw, ...	230	2	1	1	...	1	...	6	11	16	2	22	10	7	22	18	2	48	8	9	3	41
13. Anderston, ...	544	...	3	4	...	8	...	3	21	28	4	43	42	27	47	46	1	111	25	17	2	112
14. Sandyford, ...	410	2	3	1	...	2	...	8	18	25	3	28	22	20	46	35	...	81	13	20	...	83
15. Park, ...	273	...	2	2	...	2	...	2	4	9	3	18	7	18	31	42	1	60	6	4	2	60
16. Cowcaddens, ...	957	...	9	...	...	18	...	31	63	36	4	66	56	26	71	60	2	235	27	37	6	210
17. Woodside, ...	693	2	6	6	...	3	...	18	38	23	5	49	45	24	60	55	2	135	23	29	3	167
18. Hutchesontown, ...	819	3	5	5	1	10	...	20	38	32	5	72	64	21	70	53	1	213	21	29	4	152
19. Gorbals, ...	693	1	5	7	1	6	...	20	22	20	8	73	32	27	65	60	1	173	26	13	...	133
20. Kingston, ...	651	1	4	3	...	3	...	23	24	34	2	70	31	25	71	54	...	130	25	25	3	123
21. Govanhill, ...	473	...	5	10	...	3	...	8	22	15	4	39	37	26	45	28	2	90	14	23	1	101
22. Langside, ...	307	...	4	2	1	2	...	2	9	9	1	21	12	23	43	47	1	44	2	12	...	72
23. Pollokshields, ...	164	...	...	2	...	2	...	4	1	3	2	6	9	7	27	24	...	19	1	5	...	52
24. Kelvinside, ...	151	...	2	...	...	1	...	...	...	4	...	10	5	12	26	15	...	18	3	1	1	53
25. Maryhill, ...	544	..	6	2	...	1	...	6	24	20	2	37	36	19	45	45	2	142	18	32	...	107
— Institutions and Harbour, ...	1,049	5	3	...	...	1	...	11	10	16	9	157	44	24	125	142	2	184	36	4	19	257
CITY, ...	14,483	24	103	82	6	142	1	346	604	652	135	1,260	935	513	1,403	1,192	38	3,032	426	476	67	3,046

TABLE IV.—Glasgow.—Death-rates per Million from Different Diseases in each Municipal Ward in 1903.

Municipal Wards.	All Causes.	Smallpox.	Diphtheria and Membranous Croup.	Scarlet Fever.	Fevers.			Measles.	Whooping-cough.	Diarrhœa.	Septic Diseases.	Tubercular Diseases.		Cancer, Malignant Diseases.	Diseases of Nervous System.	Diseases of Circulatory System.	Croup.	Diseases of Respiratory System.	Violence.	Premature Birth.	Uncertified.	All Other Causes
					Typhus.	Enteric.	Undefined					Phthisis.	Otherthan Phthisis.									
1. Dalmarnock, ...	19,249	59	157	59	...	256	...	610	1,121	1,612	275	1,357	1,475	492	1,907	1,258	59	4,404	354	668	...	3,126
2. Calton, ...	22,844	...	128	51	51	282	...	821	1,130	1,669	154	2,156	1,540	693	2,182	1,592	128	4,518	539	667	282	4,261
3. Mile-end, ...	23,233	69	139	116	...	394	...	788	1,112	1,413	301	1,992	1,598	788	2,363	1,575	23	4,401	556	579	23	5,003
4. Whitevale, ...	19,184	30	148	237	...	296	...	533	681	770	207	1,865	1,658	799	1,747	1,539	118	3,789	474	622	148	3,523
5. Dennistoun, ...	13,258	...	154	308	...	154	...	246	646	369	154	984	1,261	646	1,200	1,384	...	2,338	92	523	...	2,799
6. Springburn, ...	18,665	...	97	73	24	121	...	484	508	943	193	1,499	1,523	459	1,547	1,088	97	4,086	725	604	24	4,569
7. Cowlairs, ...	15,312	...	235	67	...	134	...	101	1,041	571	336	1,141	1,041	504	1,377	1,108	101	3,123	537	638	...	3,257
8. Townhead, ...	18,405	25	75	50	...	175	25	625	975	675	275	1,350	1,426	675	1,501	1,451	25	3,651	600	775	25	4,026
9. Blackfriars, ...	22,524	...	87	87	...	260	...	520	606	1,299	260	2,296	1,213	390	2,339	1,213	...	5,544	996	736	173	4,505
10. Exchange, ...	18,369	...	...	...	...	448	...	...	...	448	...	1,792	448	448	1,792	2,240	...	4,032	896	448	...	5,377
11. Blythswood, ...	13,626	...	...	...	...	...	...	278	278	556	278	2,225	556	556	1,112	2,225	...	2,781	278	...	...	2,503
12. Broomielaw, ...	27,588	240	120	120	...	120	...	720	1,319	1,919	240	2,639	1,199	840	2,639	2,159	240	5,757	960	1,079	360	4,918
13. Anderston, ...	18,470	...	102	136	...	271	...	102	713	950	136	1,460	1,426	916	1,596	1,562	34	3,769	849	577	68	3,803
14. Sandyford, ...	15,478	75	113	38	...	75	...	302	680	944	113	1,057	831	755	1,737	1,321	...	3,058	491	755	...	3,133
15. Park, ...	10,940	...	80	80	...	80	..	80	160	361	120	721	281	721	1,242	1,683	40	2,405	241	160	80	2,405
16. Cowcaddens, ...	23,949	...	225	...	...	450	...	776	1,577	901	100	1,652	1,401	651	1,777	1,501	50	5,881	676	926	150	5,255
17. Woodside, ...	15,179	44	131	131	...	66	...	394	832	504	109	1,073	986	526	1,314	1,205	44	2,957	504	635	66	3,658
18. Hutchesontown,...	19,512	72	119	119	24	238	...	477	905	762	119	1,715	1,525	500	1,668	1,263	24	5,075	500	691	95	3,621
19. Gorbals, ...	18,966	27	137	192	27	164	...	547	602	547	219	1,998	876	739	1,779	1,642	27	4,735	712	356	...	3,640
20. Kingston, ...	18,727	29	115	86	...	86	...	662	690	978	58	2,014	892	719	2,043	1,553	...	3,740	719	719	86	3,538
21. Govanhill, ...	13,999	...	148	296	...	89	...	237	651	444	118	1,154	1,095	769	1,332	829	59	2,664	414	681	30	2,989
22. Langside, ...	10,363	...	135	67	34	67	...	67	304	304	34	709	405	776	1,452	1,587	34	1,485	67	405	...	2,430
23. Pollokshields, ...	9,656	...	...	118	...	118	...	235	59	176	118	353	530	412	1,590	1,413	...	1,119	59	294	...	3,061
24. Kelvinside, ...	8,009	...	106	...	...	53	...	...	...	212	...	530	265	637	1,379	796	...	955	159	53	53	2,811
25. Maryhill, ...	14,951	...	165	55	...	27	...	165	659	550	55	1,017	989	522	1,237	1,237	55	3,903	495	879	...	2,941
— Institutions, ...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
CITY, ...	18,524	31	132	105	8	182	1	442	772	834	173	1,611	1,196	656	1,794	1,524	48	3,879	545	609	86	3,896

TABLE V.—Glasgow.—Cases of Infectious Disease Registered in each Municipal Ward, showing those Treated in Hospital, for the Year 1903.

Municipal Wards.	Infectious Disease (Notification) Act, 1889.																Other Infectious Diseases.								Total.	
	Fevers.								Smallpox.		Scarlet Fever.		Diphtheria and Membranous Croup.		Erysipelas.		Measles.		Whooping-cough.		Chickenpox.		Phthisis.			
	Typhus.		Enteric.		Continued and Undefined.		Puerperal.																			
	Hosp.	Home.	Hosp.	Home.	Hosp.	Home.	Hosp.	Home.	Hosp.	Home.	Hosp.	Home.	Hosp.	Home.	Hosp.	Home.	Hosp.	Home.	Hosp.	Home.	Hosp.	Home.	Hosp.	Home.	Hosp.	Home.
1. Dalmarnock,	6	...	56	1	1	...	7	1	40	...	73	4	31	3	10	48	72	1,034	28	73	3	7	1	3	328	1,174
2. Calton,	4	...	52	4	2	...	6	3	20	...	42	2	15	5	22	56	105	417	41	35	5	...	...	7	314	529
3. Mile-end,	2	...	69	2	*2	...	4	3	38	...	74	1	27	5	19	47	98	558	20	67	4	1	1	24	358	708
4. Whitevale,	...	...	47	5	2	...	3	2	21	...	92	13	22	5	19	53	65	274	5	27	...	1	...	11	276	391
5. Dennistoun,	...	...	17	11	...	...	1	3	4	...	110	40	33	19	5	35	15	445	6	57	2	1	1	3	194	614
6. Springburn,	1	...	62	...	...	...	5	1	3	...	121	6	25	3	10	27	33	302	9	34	3	2	...	5	272	380
7. Cowlairs,	...	...	27	1	...	...	...	1	3	...	70	5	20	4	5	34	9	118	14	194	...	4	...	5	148	366
8. Townhead,	...	...	52	...	2	...	2	1	12	...	70	5	24	12	14	35	43	621	29	75	7	15	...	9	255	773
9. Blackfriars,	1	...	36	3	...	...	4	2	7	...	44	1	14	1	15	38	29	231	26	23	6	...	1	10	183	309
10. Exchange,	...	...	2	...	...	...	...	...	...	...	5	...	2	...	1	2	5	9	...	...	1	...	...	...	16	11
11. Blythswood,	...	...	...	1	...	...	...	...	...	...	6	1	2	1	1	3	4	10	1	2	...	...	...	1	14	19
12. Broomielaw,	...	...	16	1	1	...	2	...	3	...	16	2	1	1	6	8	7	57	2	22	5	1	...	3	59	95
13. Anderston,	2	...	42	3	...	...	2	3	3	...	86	5	24	5	6	29	8	104	9	17	3	9	...	5	185	180
14. Sandyford,	...	...	10	2	...	...	1	2	14	...	57	7	11	13	9	22	17	120	2	23	2	5	...	1	123	195
15. Park,	...	...	4	3	...	...	1	...	...	...	44	18	20	14	9	17	10	37	...	8	1	2	...	4	89	103
16. Cowcaddens,	...	...	97	4	1	...	3	1	7	...	71	1	26	9	5	45	105	472	33	166	3	9	...	5	351	712
17. Woodside,	...	..	31	4	...	...	3	1	8	...	122	17	40	12	9	31	62	560	19	59	...	14	1	9	295	707
18. Hutchesontown,	1	...	50	2	...	...	4	1	19	1	128	3	35	7	17	39	111	703	19	83	5	6	...	13	389	858
19. Gorbals,	8	...	65	4	1	...	10	2	12	...	92	16	26	8	16	57	50	409	14	28	1	5	...	10	295	539
20. Kingston,	5	...	41	8	1	...	4	1	9	...	54	5	15	5	10	33	104	482	18	39	...	4	...	10	261	587
21. Govanhill,	...	...	19	...	...	...	4	1	8	...	123	19	32	8	4	28	46	502	16	78	...	8	2	11	254	655
22. Langside,	1	...	3	5	...	...	...	...	1	...	95	43	12	22	1	14	8	90	3	17	...	1	...	3	124	195
23. Pollokshields,	...	...	1	2	...	...	1	...	...	...	12	29	7	25	...	11	17	18	2	1	5	2	...	...	45	88
24. Kelvinside,	...	...	...	6	...	...	1	1	2	...	13	33	11	11	3	7	16	11	...	...	...	2	...	10	46	71
25. Maryhill,	...	...	25	1	...	...	4	...	...	...	80	21	17	11	6	49	20	380	8	248	..	23	...	..	160	743
— Institutions and Harbour,	1	...	47	...	5	...	5	1	57	...	34	...	23	...	66	4	138	...	33	...	37	...	...	...	446	5
CITY,	32	...	871	73	*18	...	77	31	291	1	1,734	297	515	209	288	772	1,197	7,964	357	1,376	93	122	†7	†162	5,480	11,007

* Includes 1 case Anthrax. † See footnote to Table VI.

TABLE VI.—Glasgow.—Cases of Infectious Disease Registered, showing the Number Treated in Hospital, for each Month of the Year 1903.

Months.	Infectious Disease (Notification) Act, 1889.																				Other Infectious Diseases.										Total.	
	Fevers.										Smallpox.		Scarlet Fever.		Diphtheria.		Membranous Croup.		Erysipelas.		Measles.		Whooping-cough.		Chickenpox.		Phthisis.*		Anthrax.			
	Typhus.		Enteric.		Continued.		Puerperal.		Undefined.																							
	Hosp.	Home.	Hosp.	Home.	Hosp.	Home.	Hosp.	Home.	Hosp.	Home.	Hosp.	Home.	Hospital.	Home.	Hosp.	Home.	Hosp.	Home.	Hosp.	Home.	Hosp.	Home.	Hosp.	Home.	Hosp.	Home.	Hosp.	Home.	Hosp.	Home.	Hospital.	Home.
January,	...	...	76	5	1	..	9	4	...	...	1	...	163	27	65	22	5	4	39	78	16	238	71	321	7	12	2	45	...	...	455	756
February,	8	...	64	7	...	...	8	3	4	...	1	...	146	25	23	14	3	1	14	50	21	191	43	186	3	6	1	43	...	...	339	526
March,	3	...	58	2	2	...	8	6	2	...	...	...	105	41	43	19	3	1	22	66	49	191	38	262	6	10	1	44	...	...	340	642
April,	...	...	50	3	...	...	5	...	3	...	...	...	140	21	22	11	6	...	24	58	31	207	35	180	4	4	3	29	...	...	323	513
May,	. .	...	61	7	...	...	7	4	1	...	2	...	133	21	29	12	4	2	35	46	82	330	25	151	12	4	...	1	...	...	391	578
June,	...	...	60	3	...	...	5	3	...	...	...	...	162	33	20	6	2	2	18	58	84	380	42	75	8	12	...	...	1	...	402	572
July,	1	...	67	3	...	...	7	1	1	...	...	...	136	13	25	12	...	1	22	33	85	356	25	42	11	13	...	...	...	...	380	474
August,	14	...	149	1 2	...	...	9	2	...	...	...	...	161	15	38	10	5	...	21	67	89	307	22	48	11	8	...	...	...	...	519	469
September,	...	...	102	1 3	...	...	4	2	1	...	1	...	190	23	34	10	7	...	20	73	84	467	15	43	3	4	...	...	...	...	461	635
October,	3	...	90	9	1	...	5	3	...	...	30	...	150	31	55	34	7	...	26	75	173	1,276	11	28	5	12	...	...	...	...	556	1,468
November,	3	...	61	7	1	...	6	1	...	...	64	...	125	14	71	24	7	4	22	82	247	1,800	19	19	13	26	...	...	...	...	639	1,977
December,	...	...	33	2	...	...	4	2	...	...	192	1	123	33	37	17	4	3	25	86	236	2,221	11	21	10	11	...	...	...	...	675	2,397
Total,	32	...	871	73	5	...	77	31	12	...	291	1	1,734	297	462	191	53	18	288	772	1197	7,964	357	1,376	93	122	7	162	1	...	5,480	11,007

* 481 further Home Cases were registered between May and December.

TABLE VII.—Glasgow.—Deaths Certified and otherwise in each Municipal Ward during 1903.

Municipal Wards.	Deaths Certified and otherwise.								Deaths under 5 years.				Legitimate.				Illegitimate.			
	Certified.		Not Certified.		No Medical Attendance.		Dispensary.		Under 1 year.		1 and under 5 years.		Under 1 year.		1 and under 5 years.		Under 1 year.		1 and under 5 years.	
	Under 5 yrs.	5 yrs. & up.	Under 5 yrs.	5 yrs. & up.	Under 5 yrs.	5 yrs. & up.	Under 5 yrs.	5 yrs. & up.	Number.	Certified.	Number.	Certified.	Number.	Certified.	Number.	Certified.	Number.	Certified.	Number.	Certified.
1. Dalmarnock,	498	473	...	3	4	1	...	...	291	287	211	211	262	258	198	198	29	29	13	13
2. Calton,	397	468	6	7	7	5	...	...	234	223	176	174	192	186	166	164	42	37	10	10
3. Mile-end,	439	540	7	2	10	1	4	...	271	251	189	188	234	220	182	181	37	31	7	7
4. Whitevale,	270	363	2	3	7	1	2	...	160	151	121	119	136	127	112	110	24	24	9	9
5. Dennistoun,	159	269	...	1	...	2	...	...	96	96	63	63	84	84	61	61	12	12	2	2
6. Springburn,	383	376	2	2	4	...	5	...	245	236	149	147	226	219	145	144	19	17	4	3
7. Cowlairs,	199	252	...	1	4	...	...	...	126	122	77	77	112	108	73	73	14	14	4	4
8. Townhead,	307	414	2	5	4	...	4	...	190	182	127	125	167	160	118	116	23	22	9	9
9. Blackfriars,	199	299	3	3	9	2	5	...	140	125	76	74	110	101	68	66	30	24	8	8
10. Exchange,	9	31	1	...	...	...	...	...	7	6	3	3	7	6	3	3	...	...	...	...
11. Blythswood,	11	36	...	1	...	1	...	...	6	6	5	5	5	5	3	3	1	1	2	2
12. Broomielaw,	73	142	1	7	5	1	1	...	53	46	27	27	46	42	22	22	7	4	5	5
13. Anderston,	211	323	1	3	5	...	1	...	135	128	83	83	126	119	81	81	9	9	2	2
14. Sandyford,	147	259	...	...	3	...	1	...	100	97	51	50	87	84	49	48	13	13	2	2
15. Park,	49	222	1	1	...	...	...	...	34	33	16	16	31	30	16	16	3	3	...	...
16. Cowcaddens,	390	492	5	10	26	11	21	2	272	224	170	166	229	188	154	151	43	36	16	15
17. Woodside,	280	394	4	5	4	4	2	...	186	178	104	102	167	160	102	100	19	18	2	2
18. Hutchesontown,	361	451	2	2	2	...	1	...	221	216	145	145	195	190	135	135	26	26	10	10
19. Gorbals,	248	431	2	3	3	1	5	...	154	147	104	101	141	135	97	94	13	12	7	7
20. Kingston,	264	365	2	5	8	1	5	1	174	163	105	101	158	148	95	91	16	15	10	10
21. Govanhill,	204	266	...	...	3	...	...	...	140	137	67	67	131	128	64	64	9	9	3	3
22. Langside,	59	247	1	...	...	...	...	...	44	43	16	16	42	41	16	16	2	2	...	...
23. Pollokshields,	31	131	...	2	...	...	...	...	22	22	9	9	22	22	9	9	...	...	...	...
24. Kelvinside,	18	132	...	...	1	...	...	...	16	15	3	3	14	14	3	3	2	1	...	...
25. Maryhill,	246	279	7	8	4	...	...	...	165	154	92	92	155	144	89	89	10	10	3	3
— Institutions and Harbour,	136	877	6	12	3	15	...	...	81	72	64	64	37	30	48	48	44	42	16	16
CITY,	5,588	8,532	55	86	116	46	57	3	3,563	3,360	2,253	2,228	3,116	2,949	2,109	2,086	447	411	144	142

TABLE VIII.—Glasgow.—Deaths in Friendly Societies in each Municipal Ward during 1903.

Municipal Wards.	Under 1 Year.		1 and under 5 Years.		5 Years and over.	All Ages.
	Legitimate.	Illegitimate.	Legitimate.	Illegitimate.		
1. Dalmarnock, ...	142	5	173	3	419	742
2. Calton, ...	91	8	127	4	378	608
3. Mile-end, ...	113	3	140	6	445	707
4. Whitevale, ...	64	5	80	4	290	443
5. Dennistoun, ...	34	1	43	2	193	273
6. Springburn, ...	86	3	114	2	312	517
7. Cowlairs, ...	55	2	54	2	219	332
8. Townhead, ...	88	2	90	4	339	523
9. Blackfriars, ...	35	2	42	3	213	295
10. Exchange, ...	4	...	1	...	20	25
11. Blythswood, ...	1	...	1	1	19	22
12. Broomielaw, ...	18	1	19	1	82	121
13. Anderston, ...	47	1	58	1	258	365
14. Sandyford, ...	32	2	39	1	174	248
15. Park, ...	10	...	10	...	98	118
16. Cowcaddens, ...	90	5	114	6	271	486
17. Woodside, ...	62	2	75	...	274	413
18. Hutchesontown, ...	92	7	109	4	363	575
19. Gorbals, ...	57	2	63	1	307	430
20. Kingston, ...	72	3	70	6	277	428
21. Govanhill, ...	49	2	50	1	190	292
22. Langside, ...	4	...	5	...	58	67
23. Pollokshields, ...	7	...	6	...	37	50
24. Kelvinside, ...	3	...	...	...	13	16
25. Maryhill, ...	47	1	74	2	185	309
— Institutions and Harbour, ...	6	...	13	3	307	329
CITY, ...	1,309	57	1,570	57	5,741	8,734

TABLE IX.—Showing Hospital Bed Accommodation for Infectious Diseases in Glasgow since 1865.

Year.	Parish.			Glasgow Royal Infirmary.	Local Authority.				Total Beds.	Population in Thousands.	Beds per Thousand.
	City.	Barony.	Govan.		Parliamentary Road.	Belvidere Fever.	Belvidere Small-pox.	Ruchill.			
1865	100	120	54	200	136	...	...	...	610	428	1·4
1866	100	120	54	175	136	...	...	...	585	438	1·3
1867	...	120	54	100	136	...	...	...	410	446	0·9
1869	...	120	54	135	136	...	...	...	445	464	1·0
1870	...	120	54	100	250	250	...	...	774	471	1·7
1872	...	120	...	100	250	250	...	...	720	495	1·4
1875	...	...	...	100	250	250	...	...	600	500	1·2
1876	...	...	...	...	250	250	...	...	500	502	1·0
1878	...	...	...	...	120	250	150	...	520	507	1·0
1880	...	...	...	...	120	250	150	...	520	510	1·0
1881	...	...	...	...	120	370	150	...	640	512	1·2
1882	...	...	...	...	120	220	150	...	490	518	1·0
1887	...	...	...	...	120	390	150	...	660	545	1·2
1893	...	...	...	...	200	390	150	...	740	644	1·1
1900	...	...	...	...	200	390	150	440	1,180	755	1·6
1901	...	...	...	...	200	390	235	440	1,265	798	1·6

In addition to the above, 5 temporary pavilions, with accommodation for 75 beds, erected at Belvidere during the smallpox epidemic of 1900-01, are available, and Glasgow has, since the annexation of Hillhead and Maryhill in 1891, shared with Partick the use of the Joint-Hospital at Knightswood, which has 80 beds.

Parliamentary Road Hospital was closed in November, 1901, and has since only been in occasional and part use for Reception-house purposes.

TABLE X.—City of Glasgow Fever and Smallpox Hospitals.—Number, Average Residence, and Cost of Treatment of Patients from 1883-84.

Year.	Patients.			Total Ordinary Expenditure.			Average Daily Cost per Patient.			Average Cost of Treatment per Patient.			Average Cost of Bed per Year.		
	Total under Treatment.	Average Daily Number in Hospitals.	Average Residence in Days.	£	s.	d.	£	s.	d.	£	s.	d.	£	s.	d.
1883-84	3,200	338	41·7	15,772	0	0	0	2	6·6	5	6	4·0	46	10	9·0
1884-85	3,828	355	38·1	19,754	6	7	0	2	11·0	5	11	1·5	53	4	7·0
1885-86	2,154	215	40·3	15,550	6	6	0	3	11·5	7	19	6·2	72	4	9·5
1886-87	2,993	332	43·3	16,504	3	5	0	2	8·7	5	17	11·9	49	14	7·5
1887-88	3,056	327	42·5	17,768	17	10	0	2	11·6	6	6	1·0	54	5	9·6
1888-89	3,459	357	41·7	18,171	15	6	0	2	9·5	5	16	4·9	50	18	11·5
1889-90	3,582	361	36·8	17,899	7	3	0	2	8·6	4	19	11·7	49	11	7·0
1890-91	4,286	460	39·2	21,092	15	11	0	2	6·1	4	18	5·9	45	17	0·7
1891-92	4,850	491	37·1	26,808	9	7	0	2	11·8	5	10	8·2	54	11	10·8
1892-93	6,749	699	37·8	36,263	18	8	0	2	10·1	5	7	5·4	51	17	6·1
1893-94	5,528	624	41·2	34,551	14	3	0	3	0·5	6	5	2·6	55	9	3·5
1894-95	5,482	644	42·9	34,039	19	0	0	2	10·8	6	4	2·2	52	17	3·4
1895-96	5,127	651	46·5	34,892	12	8	0	2	11·1	6	16	1·5	53	11	5·6
1896-97	5,468	627	41·9	34,224	14	9	0	2	11·9	6	5	2·5	54	11	0·5
1897-98	5,687	709	45·5	36,972	18	10	0	2	10·3	6	10	0·3	52	3	5·7
1898-99	5,956	833	45·3	39,261	9	2	0	2	7·0	5	16	11·8	47	2	7·3
1899-1900	6,663	923	44·8	42,020	9	11	0	2	5·9	5	11	10·0	45	10	8·2
1900-01	8,888	1,031	42·3	69,015	8	6	0	3	8·0	7	15	1·9	66	18	9·8
1901-02	6,990	772	40·3	64,265	12	10	0	4	6·7	9	3	10·6	83	5	0·1
1902-03	4,882	592	44·3	53,185	12	10	0	4	11·1	10	17	10·6	89	17	2·8

N. B.—The above calculations of cost do not include interest on capital expended in erecting Hospitals.

TABLE XI.—City of Glasgow Fever and Smallpox Hospitals.—Statement showing Patients classified as to Disease, Average Residence, and Average Cost per Patient for each Year from 1883-84.

Year.	Scarlet Fever.		Enteric Fever.		Whooping-Cough.		Typhus.		Measles.		Other Infectious Diseases.*		Smallpox.		All Other Diseases.†	
	Average Residence (Days).	Average Cost per Patient.	Average Residence (Days).	Average Cost per Patient.	Average Residence (Days).	Average Cost per Patient.	Average Residence (Days).	Average Cost per Patient.	Average Residence (Days).	Average Cost per Patient.	Average Residence (Days).	Average Cost per Patient.	Average Residence (Days).	Average Cost per Patient.	Average Residence (Days).	Average Cost per Patient.
		£ s. d.		£ s. d.		£ s. d.		£ s. d.		£ s. d.		£ s. d.		£ s. d.		£ s. d.
1883-84	51·7	6 11 10·0	44·4	5 13 2·6	58·9	7 10 2·3	35·8	4 11 3·5	34·8	4 8 8·9	...	...	27·5	3 10 1·5	26·4	3 7 3·8
1884-85	50·2	7 6 5·0	45·1	6 11 6·5	44·4	6 9 6·0	35·2	5 2 8·0	30·6	4 9 3·0	...	...	19·2	2 16 0·0	22·0	3 4 2·0
1885-86	54·7	10 16 6·2	46·6	9 4 5·5	36·2	7 3 3·5	31·5	6 4 8·2	26·2	5 3 8·5	24·7	4 17 9·2	24·1	4 15 4·7	21·8	4 6 3·5
1886-87	56·1	7 12 10·5	48·7	6 12 8·5	44·3	6 0 8·6	31·3	4 5 3·5	29·5	4 0 4·6	26·5	3 12 2·5	...	...	26·2	3 11 4·7
1887-88	55·2	8 3 9·1	50·3	7 9 2·7	42·1	6 4 10·7	33·2	4 18 5·9	22·2	3 5 10·3	29·0	4 6 0·4	16·5	2 8 11·4	21·3	3 3 2·3
1888-89	56·7	7 18 3·4	52·5	7 6 6·7	50·1	6 19 10·3	34·2	4 15 5·7	26·6	3 14 3·1	28·3	3 19 0·0	18·5	2 11 7·7	23·9	3 6 8·6
1889-90	54·4	7 7 9·4	50·2	6 16 4·5	53·0	7 3 11·8	34·9	4 14 9·7	30·6	4 3 1·6	21·4	2 18 1·6	24·0	3 5 2·4	22·5	3 1 1·5
1890-91	54·3	6 16 5·1	49·0	6 3 1·3	40·3	5 1 3·0	32·4	4 1 4·9	25·4	3 3 9·8	25·2	3 3 3·8	24·0	3 0 3·6	25·4	3 3 9·8
1891-92	53·7	8 0 2·5	49·3	7 7 0·9	43·8	6 10 10·0	31·3	4 13 4·5	26·2	3 18 2·0	22·9	3 8 3·8	38·0	5 13 4·4	20·8	3 2 0·6
1892-93	50·6	7 3 10·0	49·1	6 19 6·8	42·6	6 1 1·1	32·8	4 13 2·8	26·1	3 14 2·3	20·0	2 16 10·2	30·0	4 5 3·3	20·2	2 17 5·0
1893-94	52·7	8 0 2·0	52·5	7 19 6·7	51·0	7 15 0·0	34·8	5 5 9·2	27·7	4 4 2·2	22·4	3 8 0·9	42·2	6 8 3·0	23·1	3 10 2·5
1894-95	57·4	8 6 3·2	51·8	7 10 0·6	61·0	8 16 8·4	34·8	5 0 9·6	27·7	4 0 2·8	26·2	3 15 10·7	30·4	4 8 0·7	27·1	3 18 6·0
1895-96	57·7	8 8 11·0	57·2	8 7 5·4	54·1	7 18 4·5	33·1	4 16 10·8	29·2	4 5 5·8	31·2	4 11 4·1	30·1	4 8 1·4	29·4	4 6 0·8
1896-97	58·1	8 13 8·0	55·3	8 5 3·6	53·5	7 19 11·0	28·8	4 6 1·1	29·3	4 7 7·0	32·6	4 17 5·4	31·5	4 14 1·9	28·1	4 3 11·9
1897-98	59·9	8 11 2·9	54·7	7 16 4·5	58·1	8 6 1·2	43·1	6 3 2·6	29·2	4 3 5·7	36·3	5 3 9·3	31·0	4 8 7·5	31·3	4 9 5·8
1898-99	58·7	7 11 7·1	55·4	7 3 0·8	54·9	7 1 9·3	35·7	4 12 2·3	29·6	3 16 5·3	33·8	4 7 3·5	...	...	29·6	3 16 5·3
1899-1900	59·3	7 7 11·4	55·7	6 18 11·7	54·4	6 15 8·7	33·4	4 3 4·0	27·8	3 9 5·3	34·9	4 7 0·9	22·6	2 16 4·6	28·6	3 11 4·3
1900-01	58·7	10 15 3·7	56·7	10 7 11·7	51·1	9 7 5·2	33·2	6 1 9·3	26·0	4 15 4·4	38·7	7 1 11·4	28·1	5 3 0·9	30·0	5 10 0·5
1901-02	53·5	12 4 0·6	53·8	12 5 5·0	58·9	13 8 8·2	30·4	6 18 8·1	30·5	6 19 1·6	35·2	8 0 6·9	30·4	6 18 8·1	32·8	7 9 7·5
1902-03	57·9	14 5 1·3	51·6	12 14 1·0	60·8	14 19 4·7	44·0	10 16 8·0	31·6	7 15 7·2	35·5	8 14 9·7	26·1	6 8 6·3	31·4	7 14 7·4

* Includes Erysipelas, Diphtheria, Chickenpox, and Puerperal Fever; prior to 1885-86, these are included in "Other Diseases."
† Includes Nursing Mothers, besides persons sent in by mistaken Diagnosis.
N.B.—The above Calculations do not include Interest on Capital expended in erecting Hospitals.

TABLE XII.

City of Glasgow Fever and Smallpox Hospitals.

RETURN BY THE MEDICAL OFFICER OF HEALTH

Showing Number, Average Residence, and Cost of Treatment of Patients, 1903-1904.

ORDINARY EXPENDITURE, as per Treasurer's Statement, * : —

Fever Hospital, Belvidere, ...	£24.549 10 8	
Smallpox Hospital, Belvidere, ...	4,146 5 0	
Fever Hospital, Ruchill.	27,265 7 2	£55,961 2 10

* The Ordinary Expenditure on all the Hospitals has been thrown together. There is a certain amount of community in the Expenditure which could not be unravelled without trouble quite out of proportion to any result.

Average daily number of Patients in Fever Hospital, Belvidere, ...	245
Average daily number of Patients in Smallpox Hospital, Belvidere, ...	97
Average daily number of Patients in Fever Hospital, Ruchill, ...	378
Average daily number of Patients in Hospitals, ...	720

	Belvidere Fever Hospital.	Belvidere Smallpox Hospital.	Ruchill Hospital.	Total.
Patients remaining at 31st May, 1903, ...	281	21	269	571
Patients admitted during 1903-1904, ...	2,075	1,181	2,972	6,228
Total under Treatment, 1903-1904,†				6,799
Average Residence, ...		38·8 days.		

Average Daily Expenditure, ...	£152 17 11·83
Average Daily Cost per Patient, ...	0 4 2·97
Average Cost of Treatment per Patient, ...	8 4 9·63
Average Cost of Bed per Year, ...	77 14 7·02

†In addition to this number, 215 Patients (21 remaining at 31st May, 1903, and 194 admitted during year) were treated in the Joint-Hospital, Knightswood, the Glasgow share in the Ordinary Expenditure of which was £2,156 8s. 2d.

STATEMENT SHOWING PATIENTS CLASSIFIED AS TO DISEASE, AVERAGE RESIDENCE IN EACH CASE SO FAR AS DISMISSED UP TO 1st JULY, 1904, AND AVERAGE COST AT THE DAILY RATE GIVEN ABOVE—

Disease.	No. Admitted.	Average Residence.	Average Cost.
Scarlet Fever, ...	1,539	55·9 days.	£11 17 5·22
Enteric Fever, ...	666	56·3 „	11 19 1·61
Hooping-cough, ...	283	49·2 „	10 8 11·72
Typhus Fever, ...	21	33·9 „	7 3 11·88
Measles, ...	1,545	27·8 „	5 18 0·96
Other Infectious Diseases,*	799	33·7 „	7 3 1·68
Smallpox, ...	1,008	29·6 „	6 5 8·71
All other Diseases,†	367	27·9 „	5 18 6·06
All Cases, ...	6,228		

* Includes Erysipelas, Diphtheria, Chickenpox, and Puerperal Fever.
† Includes Nursing Mothers, besides Persons sent in by mistaken diagnosis.

The above calculations of cost do not include Interest on Capital expended in erecting Hospitals.

A. K CHALMERS.

SANITARY DEPARTMENT,
GLASGOW, *10th July, 1904.*